

CONTAINS NO CBI



Form Approved
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EPA-OTS



000657200K

90-890000137

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Comprehensive Assessment Information Rule
REPORTING FORM

65 JUL 9 PM 3:10
EPA-OTS CONTROL
OFFICE

When completed, send this form to:

Document Processing Center
Office of Toxic Substances, TS-790
U.S. Environmental Protection Agency
401 M Street, SW
Washington, DC 20460
Attention: CAIR Reporting Office

For Agency Use Only:

Date of Receipt: _____

Document
Control Number: _____

Docket Number: _____

PART A GENERAL REPORTING INFORMATION

completed in response to the Federal Register Notice of..... [1][2] [2][2] [8][8]
mo. day year

CBI

- [] a. If a Chemical Abstracts Service Number (CAS No.) is provided in the Federal Register, list the CAS No. [0][2][6][4][7][1]-[6][2]-[5]
- b. If a chemical substance CAS No. is not provided in the Federal Register, list either (i) the chemical name, (ii) the mixture name, or (iii) the trade name of the chemical substance as provided in the Federal Register.
- (i) Chemical name as listed in the rule NA
- (ii) Name of mixture as listed in the rule NF
- (iii) Trade name as listed in the rule NA
- c. If a chemical category is provided in the Federal Register, report the name of the category as listed in the rule, the chemical substance CAS No. you are reporting on which falls under the listed category, and the chemical name of the substance you are reporting on which falls under the listed category.
- Name of category as listed in the rule NA
- CAS No. of chemical substance [][][][][][]-[][]-[][]
- Name of chemical substance

1.02 Identify your reporting status under CAIR by circling the appropriate response(s).

CBI Manufacturer 1

[] Importer 2

Processor ③

X/P manufacturer reporting for customer who is a processor 4

X/P processor reporting for customer who is a processor 5

☐ Mark (X) this box if you attach a continuation sheet.

1.03 Does the substance you are reporting on have an "x/p" designation associated with it in the above-listed Federal Register Notice?

CBI

☐ Yes ☒ Go to question 1.04

☐ No ☐ Go to question 1.05

1.04 a. Do you manufacture, import, or process the listed substance and distribute it under a trade name(s) different than that listed in the Federal Register Notice? Circle the appropriate response.

CBI

☐ Yes 1

☐ No 2

b. Check the appropriate box below:

☐ You have chosen to notify your customers of their reporting obligations

Provide the trade name(s) NA

☐ You have chosen to report for your customers

☐ You have submitted the trade name(s) to EPA one day after the effective date of the rule in the Federal Register Notice under which you are reporting.

1.05 If you buy a trade name product and are reporting because you were notified of your reporting requirements by your trade name supplier, provide that trade name.

CBI

Trade name NA

☐ Is the trade name product a mixture? Circle the appropriate response.

Yes 1

No 2

1.06 Certification -- The person who is responsible for the completion of this form must sign the certification statement below:

CBI

☐ "I hereby certify that, to the best of my knowledge and belief, all information entered on this form is complete and accurate."

Gary A. Wehr
NAME

Gary A. Wehr
SIGNATURE

6/5/89
DATE SIGNED

Vice President - Technical
TITLE

(215) 624 - 4400
TELEPHONE NO.

☐ Mark (X) this box if you attach a continuation sheet.

- 1.07 Exemptions From Reporting -- If you have provided EPA or another Federal agency with the required information on a CAIR Reporting Form for the listed substance within the past 3 years, and this information is current, accurate, and complete for the time period specified in the rule, then sign the certification below. You CBI ☐ are required to complete section 1 of this CAIR form and provide any information now required but not previously submitted. Provide a copy of any previous submissions along with your Section 1 submission.

"I hereby certify that, to the best of my knowledge and belief, all required information which I have not included in this CAIR Reporting Form has been submitted to EPA within the past 3 years and is current, accurate, and complete for the time period specified in the rule."

_____ NAME	_____ SIGNATURE	_____ DATE SIGNED
_____ TITLE	(_____) _____ TELEPHONE NO.	_____ DATE OF PREVIOUS SUBMISSION

- 1.08 CBI Certification -- If you have asserted any CBI claims in this report you must certify that the following statements truthfully and accurately apply to all of those confidentiality claims which you have asserted.

CBI ☐ "My company has taken measures to protect the confidentiality of the information, and it will continue to take these measures; the information is not, and has not been, reasonably ascertainable by other persons (other than government bodies) by using legitimate means (other than discovery based on a showing of special need in a judicial or quasi-judicial proceeding) without my company's consent; the information is not publicly available elsewhere; and disclosure of the information would cause substantial harm to my company's competitive position."

_____ NAME	_____ SIGNATURE	_____ DATE SIGNED
_____ TITLE	(_____) _____ TELEPHONE NO.	

☐ Mark (X) this box if you attach a continuation sheet.

PART B CORPORATE DATA

1.09 Facility Identification

CBI Name [M][C][C][L][O][S][K][E][Y][C][O][R][P][O][R][A][T][I][O][N] ☐
☐ Address [4][1][5][5][N][W][Y][E][D][O][N][A][V][E] ☐
Street
[P][O][R][T][L][A][N][D] ☐
City
[O][R] [9][7][2][1][0]--☐
State Zip

Dun & Bradstreet Number[0][0]-[2][2][7]-[7][0][8][5]
EPA ID NumberP.R.D...[0][0][2][2][7][7][0][8][5]
Employer ID Number[9][3][0][3][2][5][0][8]0
Primary Standard Industrial Classification (SIC) Code[2][8][2][1]
Other SIC Code☐☐☐
Other SIC Code☐☐☐

1.10 Company Headquarters Identification

CBI Name [T][H][E][M][C][C][L][O][S][K][E][Y][C][O][R][P][O][R][A][T][I][O][N] ☐
☐ Address [7][6][0][0][S][T][A][T][E][R][O][A][D] ☐
Street
[P][H][I][L][A][D][E][L][P][H][I][A] ☐
City
[P][A] [1][9][1][3][6]--☐
State Zip

Dun & Bradstreet Number[0][0]-[2][2][7]-[7][0][7][7]
Employer ID Number[2][3][0][8][5][4][9][1]0

☐ Mark (X) this box if you attach a continuation sheet.

CBI Name of Seller [N] [X] [] [] [] [] [] [] [] [] [] [] [] [] [] [] [] [] [] []
[] Mailing Address []
Street
[]
City
[] [] State [] [] [] [] Zip [] [] []
Employer ID Number [] [] [] [] [] [] []
Date of Sale [] [] [] [] Mo. Day Year
Contact Person []
Telephone Number [] [] [] - [] [] [] - [] [] []

CBI Name of Buyer [N] [A] [] [] [] [] [] [] [] [] [] [] [] [] [] [] [] [] [] [] []
[] Mailing Address []
 Street

 []
 City

 [] [] [] [] [] [] -- [] [] [] []
 State Zip

Employer ID Number [] [] [] [] [] [] [] []
Date of Purchase [] [] [] [] [] []
 Mo. Day Year

Contact Person []
Telephone Number [] [] [] - [] [] [] - [] [] [] []

8

1.16 For each classification listed below, state the quantity of the listed substance that was manufactured, imported, or processed at your facility during the reporting year.

CBI

☐

Classification

Quantity (kg/yr)

Manufactured NA

Imported NA

Processed (include quantity repackaged) 29,000

Of that quantity manufactured or imported, report that quantity:

In storage at the beginning of the reporting year NA

For on-site use or processing NA

For direct commercial distribution (including export) NA

In storage at the end of the reporting year NA

Of that quantity processed, report that quantity:

In storage at the beginning of the reporting year 2800

Processed as a reactant (chemical producer) 29,000

Processed as a formulation component (mixture producer) NA

Processed as an article component (article producer) NA

Repackaged (including export) NA

In storage at the end of the reporting year 5,900

☐ Mark (X) this box if you attach a continuation sheet.

1.17 Mixture -- If the listed substance on which you are required to report is a mixture or a component of a mixture, provide the following information for each component chemical. (If the mixture composition is variable, report an average percentage of each component chemical for all formulations.)

[]

Component Name	Supplier Name	Average % Composition by Weight (specify precision, e.g., 45% ± 0.5%)
NA		
Total		100%

10

2.04 State the quantity of the listed substance that your facility manufactured, imported, or processed during the 3 corporate fiscal years preceding the reporting year in descending order.

CBI

☐ Year ending [1][1] [8][7]
Mo. Year

Quantity manufactured NA kg

Quantity imported NA kg

Quantity processed 30,000 kg

Year ending [1][1] [8][6]
Mo. Year

Quantity manufactured NA kg

Quantity imported NA kg

Quantity processed 30,000 kg

Year ending [1][1] [8][5]
Mo. Year

Quantity manufactured NA kg

Quantity imported NA kg

Quantity processed 28,000 kg

2.05 Specify the manner in which you manufactured the listed substance. Circle all appropriate process types.

CBI

☐ NA
Continuous process 1
Semicontinuous process 2
Batch process 3

☐ Mark (X) this box if you attach a continuation sheet.

2.06 Specify the manner in which you processed the listed substance. Circle all appropriate process types.

☐

Continuous process 1

Semicontinuous process 2

Batch process ③

2.07 State your facility's name-plate capacity for manufacturing or processing the listed substance. (If you are a batch manufacturer or batch processor, do not answer this question.)

☐

Manufacturing capacity NA kg/yr

Processing capacity NA kg/yr

2.08 If you intend to increase or decrease the quantity of the listed substance manufactured, imported, or processed at any time after your current corporate fiscal year, estimate the increase or decrease based upon the reporting year's production volume.

☐

	Manufacturing Quantity (kg)	Importing Quantity (kg)	Processing Quantity (kg)
Amount of increase	NA	NA	NA
Amount of decrease	NA	NA	NA

☐ Mark (X) this box if you attach a continuation sheet.

2.09 For the three largest volume manufacturing or processing process types involving the listed substance, specify the number of days you manufactured or processed the listed substance during the reporting year. Also specify the average number of hours per day each process type was operated. (If only one or two operations are involved, list those.)

CBI

☐

Days/Year Average
Hours/Day

Process Type #1 (The process type involving the largest quantity of the listed substance.)

Manufactured	<u>NA</u>	<u>NA</u>
Processed	<u>20</u>	<u>9</u>

Process Type #2 (The process type involving the 2nd largest quantity of the listed substance.)

Manufactured	<u>NA</u>	<u>NA</u>
Processed	<u>NA</u>	<u>NA</u>

Process Type #3 (The process type involving the 3rd largest quantity of the listed substance.)

Manufactured	<u>NA</u>	<u>NA</u>
Processed	<u>NA</u>	<u>NA</u>

2.10 State the maximum daily inventory and average monthly inventory of the listed substance that was stored on-site during the reporting year in the form of a bulk chemical.

CBI

☐

Maximum daily inventory	_____	kg
Average monthly inventory	_____	kg

☐ Mark (X) this box if you attach a continuation sheet.

2.11 Related Product Types -- List any byproducts, coproducts, or impurities present with the listed substance in concentrations greater than 0.1 percent as it is manufactured, imported, or processed. The source of byproducts, coproducts, or impurities means the source from which the byproducts, coproducts, or impurities are made or introduced into the product (e.g., carryover from raw material, reaction product, etc.).

CBI

☐

<u>CAS No.</u>	<u>Chemical Name</u>	<u>Byproduct, Coproduct or Impurity¹</u>	<u>Concentration (%) (specify \pm % precision)</u>	<u>Source of By-products, Coproducts, or Impurities</u>
	NONE KNOWN			

¹Use the following codes to designate byproduct, coproduct, or impurity:

B = Byproduct
C = Coproduct
I = Impurity

☐ Mark (X) this box if you attach a continuation sheet.

2.12 Existing Product Types -- List all existing product types which you manufactured, imported, or processed using the listed substance during the reporting year. List the quantity of listed substance you use for each product type as a percentage of the total volume of listed substance used during the reporting year. Also list the quantity of listed substance used captively on-site as a percentage of the value listed under column b., and the types of end-users for each product type. (Refer to the instructions for further explanation and an example.)

CBI

☐

a.	b.	c.	d.
Product Types ¹	% of Quantity Manufactured, Imported, or Processed	% of Quantity Used Captively On-Site	Type of End-Users ²
B	100	0	I CS CM

¹Use the following codes to designate product types:

A = Solvent	L = Moldable/Castable/Rubber and additives
B = Synthetic reactant	M = Plasticizer
C = Catalyst/Initiator/Accelerator/ Sensitizer	N = Dye/Pigment/Colorant/Ink and additives
D = Inhibitor/Stabilizer/Scavenger/ Antioxidant	O = Photographic/Reprographic chemical and additives
E = Analytical reagent	P = Electrodeposition/Plating chemicals
F = Chelator/Coagulant/Sequestrant	Q = Fuel and fuel additives
G = Cleanser/Detergent/Degreaser	R = Explosive chemicals and additives
H = Lubricant/Friction modifier/Antiwear agent	S = Fragrance/Flavor chemicals
I = Surfactant/Emulsifier	T = Pollution control chemicals
J = Flame retardant	U = Functional fluids and additives
K = Coating/Binder/Adhesive and additives	V = Metal alloy and additives
	W = Rheological modifier
	X = Other (specify) _____

²Use the following codes to designate the type of end-users:

I = Industrial	CS = Consumer
CM = Commercial	H = Other (specify) _____

☐ Mark (X) this box if you attach a continuation sheet.

2.13 Expected Product Types -- Identify all product types which you expect to manufacture, import, or process using the listed substance at any time after your current corporate fiscal year. For each use, specify the quantity you expect to manufacture, import, or process for each use as a percentage of the total volume of listed substance used during the reporting year. Also list the quantity of listed substance used captively on-site as a percentage of the value listed under column b., and the types of end-users for each product type. (Refer to the instructions for further explanation and an example.)

CBI

☐

a.	b.	c.	d.
Product Types ¹	% of Quantity Manufactured, Imported, or Processed	% of Quantity Used Captively On-Site	Type of End-Users ²
B	100	0	T CM CS

¹Use the following codes to designate product types:

A = Solvent	L = Moldable/Castable/Rubber and additives
B = Synthetic reactant	M = Plasticizer
C = Catalyst/Initiator/Accelerator/ Sensitizer	N = Dye/Pigment/Colorant/Ink and additives
D = Inhibitor/Stabilizer/Scavenger/ Antioxidant	O = Photographic/Reprographic chemical and additives
E = Analytical reagent	P = Electrodeposition/Plating chemicals
F = Chelator/Coagulant/Sequestrant	Q = Fuel and fuel additives
G = Cleanser/Detergent/Degreaser	R = Explosive chemicals and additives
H = Lubricant/Friction modifier/Antiwear agent	S = Fragrance/Flavor chemicals
I = Surfactant/Emulsifier	T = Pollution control chemicals
J = Flame retardant	U = Functional fluids and additives
K = Coating/Binder/Adhesive and additives	V = Metal alloy and additives
	W = Rheological modifier
	X = Other (specify) _____

²Use the following codes to designate the type of end-users:

I = Industrial	CS = Consumer
CM = Commercial	H = Other (specify) _____

☐ Mark (X) this box if you attach a continuation sheet.

2.14 Final Product -- Complete the following table for each type of final product manufactured, imported, or processed at your facility that contains the listed substance other than as an impurity.

☐

a.	b.	c.	d.
Product Type ¹	Final Product's Physical Form ²	Average % Composition of Listed Substance in Final Product	Type of End-Users ³
NA			

¹Use the following codes to designate product types:

A = Solvent	L = Moldable/Castable/Rubber and additives
B = Synthetic reactant	M = Plasticizer
C = Catalyst/Initiator/Accelerator/Sensitizer	N = Dye/Pigment/Colorant/Ink and additives
D = Inhibitor/Stabilizer/Scavenger/Antioxidant	O = Photographic/Reprographic chemical and additives
E = Analytical reagent	P = Electrodeposition/Plating chemicals
F = Chelator/Coagulant/Sequestrant	Q = Fuel and fuel additives
G = Cleanser/Detergent/Degreaser	R = Explosive chemicals and additives
H = Lubricant/Friction modifier/Antiwear agent	S = Fragrance/Flavor chemicals
I = Surfactant/Emulsifier	T = Pollution control chemicals
J = Flame retardant	U = Functional fluids and additives
K = Coating/Binder/Adhesive and additives	V = Metal alloy and additives
	W = Rheological modifier
	X = Other (specify) _____

²Use the following codes to designate the final product's physical form:

A = Gas	F2 = Crystalline solid
B = Liquid	F3 = Granules
C = Aqueous solution	F4 = Other solid
D = Paste	G = Gel
E = Slurry	H = Other (specify) _____
F1 = Powder	

³Use the following codes to designate the type of end-users:

I = Industrial	CS = Consumer
CM = Commercial	H = Other (specify) _____

☐ Mark (X) this box if you attach a continuation sheet.

2.15 Circle all applicable modes of transportation used to deliver bulk shipments of the
CBI listed substance to off-site customers.

☐ Truck 1
Railcar 2
Barge, Vessel 3
Pipeline 4
Plane 5
Other (specify) _____ 6

2.16 Customer Use -- Estimate the quantity of the listed substance used by your customers
or prepared by your customers during the reporting year for use under each category
CBI of end use listed (i-iv).

☐

Category of End Use

i. Industrial Products

Chemical or mixture NA kg/yr

Article NA kg/yr

ii. Commercial Products

Chemical or mixture NA kg/yr

Article NA kg/yr

iii. Consumer Products

Chemical or mixture NA kg/yr

Article NA kg/yr

iv. Other

Distribution (excluding export) NA kg/yr

Export NA kg/yr

Quantity of substance consumed as reactant NA kg/yr

Unknown customer uses NA kg/yr

☐ Mark (X) this box if you attach a continuation sheet.

SECTION 3 PROCESSOR RAW MATERIAL IDENTIFICATION

PART A GENERAL DATA

- 3.01 Specify the quantity purchased and the average price paid for the listed substance for each major source of supply listed. Product trades are treated as purchases.
CBI The average price is the market value of the product that was traded for the listed substance.

☐

<u>Source of Supply</u>	<u>Quantity (kg)</u>	<u>Average Price (\$/kg)</u>
The listed substance was manufactured on-site.	NA	NA
The listed substance was transferred from a different company site.	NA	NA
The listed substance was purchased directly from a manufacturer or importer.	NA	NA
The listed substance was purchased from a distributor or repackager.	32,300	2.32
The listed substance was purchased from a mixture producer.	NA	NA

- 3.02 Circle all applicable modes of transportation used to deliver the listed substance to your facility.

☐

- ☒ Truck (1)
- Railcar 2
- Barge, Vessel 3
- Pipeline 4
- Plane 5
- Other (specify) _____ 6

☐ Mark (X) this box if you attach a continuation sheet.

3.03 a. Circle all applicable containers used to transport the listed substance to your facility.
CBI

☐

Bags 1
Boxes 2
Free standing tank cylinders 3
Tank rail cars 4
Hopper cars 5
Tank trucks 6
Hopper trucks 7
Drums 8
Pipeline 9
Other (specify) _____ 10

b. If the listed substance is transported in pressurized tank cylinders, tank rail cars, or tank trucks, state the pressure of the tanks.

Tank cylinders mmHg
Tank rail cars mmHg
Tank trucks mmHg

☐ Mark (X) this box if you attach a continuation sheet.

PART B RAW MATERIAL IN THE FORM OF A MIXTURE

3.04 If you obtain the listed substance in the form of a mixture, list the trade name(s) of the mixture, the name of its supplier(s) or manufacturer(s), an estimate of the average percent composition by weight of the listed substance in the mixture, and the amount of mixture processed during the reporting year.

CBI

☐

<u>Trade Name</u>	<u>Supplier or Manufacturer</u>	<u>Average % Composition by Weight (specify \pm % precision)</u>	<u>Amount Processed (kg/yr)</u>
NA			

☐ Mark (X) this box if you attach a continuation sheet.

PART C RAW MATERIAL VOLUME

3.05 State the quantity of the listed substance used as a raw material during the reporting year in the form of a class I chemical, class II chemical, or polymer, and the percent composition, by weight, of the listed substance.

☐

	Quantity Used (kg/yr)	% Composition by Weight of Listed Sub- stance in Raw Material (specify \pm % precision)
Class I chemical	29,000 Kg	99.9 \pm 0.1
Class II chemical		
Polymer		

☐ Mark (X) this box if you attach a continuation sheet.

SECTION 4 PHYSICAL/CHEMICAL PROPERTIES

General Instructions:

If you are reporting on a mixture as defined in the glossary, reply to questions in Section 4 that are inappropriate to mixtures by stating "NA -- mixture."

For questions 4.06-4.15, if you possess any hazard warning statement, label, MSDS, or other notice that addresses the information requested, you may submit a copy or reasonable facsimile in lieu of answering those questions which it addresses.

PART A PHYSICAL/CHEMICAL DATA SUMMARY

- 4.01 Specify the percent purity for the three major¹ technical grade(s) of the listed substance as it is manufactured, imported, or processed. Measure the purity of the substance in the final product form for manufacturing activities, at the time you import the substance, or at the point you begin to process the substance.

CBI

☐

	<u>Manufacture</u>	<u>Import</u>	<u>Process</u>
Technical grade #1	<u>NA</u> % purity	<u>NA</u> % purity	<u>99.9</u> % purity
Technical grade #2	<u>NA</u> % purity	<u>NA</u> % purity	<u>99.8</u> % purity
Technical grade #3	<u>NA</u> % purity	<u>NA</u> % purity	<u>NA</u> % purity

¹Major = Greatest quantity of listed substance manufactured, imported or processed.

- 4.02 Submit your most recently updated Material Safety Data Sheet (MSDS) for the listed substance, and for every formulation containing the listed substance. If you possess an MSDS that you developed and an MSDS developed by a different source, submit your version. Indicate whether at least one MSDS has been submitted by circling the appropriate response.

Yes ①

No 2

Indicate whether the MSDS was developed by your company or by a different source.

Your company 1

Another source ②

☒ Mark (X) this box if you attach a continuation sheet.

4.03 Submit a copy or reasonable facsimile of any hazard information (other than an MSDS) that is provided to your customers/users regarding the listed substance or any formulation containing the listed substance. Indicate whether this information has been submitted by circling the appropriate response.

Yes 1
 (No) 2

4.04 For each activity that uses the listed substance, circle all the applicable number(s) corresponding to each physical state of the listed substance during the activity listed. Physical states for importing and processing activities are determined at the time you import or begin to process the listed substance. Physical states for manufacturing, storage, disposal and transport activities are determined using the final state of the product.

CBI

[]

Activity	Physical State				
	Solid	Slurry	Liquid	Liquified Gas	Gas
Manufacture	1	2	3	4	5
Import	1	2	3	4	5
Process	1	2	(3)	4	5
Store	1	2	(3)	4	5
Dispose	1	2	3	4	5
Transport	1	2	(3)	4	5

[] Mark (X) this box if you attach a continuation sheet.

- 4.05 Particle Size -- If the listed substance exists in particulate form during any of the following activities, indicate for each applicable physical state the size and the percentage distribution of the listed substance by activity. Do not include particles ≥ 10 microns in diameter. Measure the physical state and particle sizes for importing and processing activities at the time you import or begin to process the listed substance. Measure the physical state and particle sizes for manufacturing storage, disposal and transport activities using the final state of the product.

CBI

☐

Physical State		Manufacture	Import	Process	Store	Dispose	Transport
Dust	<1 micron	NA	NA	NA	NA	NA	NA
	1 to <5 microns						
	5 to <10 microns						
Powder	<1 micron						
	1 to <5 microns						
	5 to <10 microns						
Fiber	<1 micron						
	1 to <5 microns						
	5 to <10 microns						
Aerosol	<1 micron						
	1 to <5 microns						
	5 to <10 microns						

☐ Mark (X) this box if you attach a continuation sheet.

SECTION 5 ENVIRONMENTAL FATE

PART A RATE CONSTANTS AND TRANSFORMATION PRODUCTS

5.01 Indicate the rate constants for the following transformation processes.

a. Photolysis:

Absorption spectrum coefficient (peak) NA (1/M cm) at _____ nm

Reaction quantum yield, ϕ NA at _____ nm

Direct photolysis rate constant, k_p , at ... NA 1/hr _____ latitude

b. Oxidation constants at 25°C:

For 1O_2 (singlet oxygen), k_{ox} NA 1/M hr

For RO_2 (peroxy radical), k_{ox} NA 1/M hr

c. Five-day biochemical oxygen demand, BOD_5 ... NA mg/l

d. Biotransformation rate constant:

For bacterial transformation in water, k_b ... NA 1/hr

Specify culture NA

e. Hydrolysis rate constants:

For base-promoted process, k_B NA 1/M hr

For acid-promoted process, k_A NA 1/M hr

For neutral process, k_N NA 1/hr

f. Chemical reduction rate (specify conditions) NA

g. Other (such as spontaneous degradation) ... NA

☐ Mark (X) this box if you attach a continuation sheet.

PART B PARTITION COEFFICIENTS

5.02 a. Specify the half-life of the listed substance in the following media.

<u>Media</u>	<u>Half-life (specify units)</u>
Groundwater	NA
Atmosphere	NA
Surface water	NA
Soil	NA

b. Identify the listed substance's known transformation products that have a half-life greater than 24 hours.

<u>CAS No.</u>	<u>Name</u>	<u>Half-life (specify units)</u>	<u>Media</u>
NA			in
			in
			in
			in

5.03 Specify the octanol-water partition coefficient, K_{ow} ... NA at 25°C

Method of calculation or determination

5.04 Specify the soil-water partition coefficient, K_d NA at 25°C

Soil type

5.05 Specify the organic carbon-water partition coefficient, K_{oc} NA at 25°C

5.06 Specify the Henry's Law Constant, H NA atm-m³/mole

☐ Mark (X) this box if you attach a continuation sheet.

5.07 List the bioconcentration factor (BCF) of the listed substance, the species for which it was determined, and the type of test used in deriving the BCF.

<u>Bioconcentration Factor</u>	<u>Species</u>	<u>Test</u> ¹
NA		

¹Use the following codes to designate the type of test:

F = Flowthrough
S = Static

☐ Mark (X) this box if you attach a continuation sheet.

6.04 For each market listed below, state the quantity sold and the total sales value of
CBI the listed substance sold or transferred in bulk during the reporting year.

☐

<u>Market</u>	<u>Quantity Sold or Transferred (kg/yr)</u>	<u>Total Sales Value (\$/yr)</u>
Retail sales	_____	_____
Distribution -- Wholesalers	_____	_____
Distribution -- Retailers	_____	_____
Intra-company transfer	_____	_____
Repackagers	_____	_____
Mixture producers	_____	_____
Article producers	_____	_____
Other chemical manufacturers or processors	_____	_____
Exporters	_____	_____
Other (specify) _____	_____	_____

6.05 Substitutes -- List all known commercially feasible substitutes that you know exist
CBI for the listed substance and state the cost of each substitute. A commercially
feasible substitute is one which is economically and technologically feasible to use
in your current operation, and which results in a final product with comparable
performance in its end uses.

☐

<u>Substitute</u>	<u>Cost (\$/kg)</u>
NONE	_____
_____	_____
_____	_____

☐ Mark (X) this box if you attach a continuation sheet.

SECTION 7 MANUFACTURING AND PROCESSING INFORMATION

General Instructions:

For questions 7.04-7.06, provide a separate response for each process block flow diagram provided in questions 7.01, 7.02, and 7.03. Identify the process type from which the information is extracted.

PART A MANUFACTURING AND PROCESSING PROCESS TYPE DESCRIPTION

7.01 In accordance with the instructions, provide a process block flow diagram showing the major (greatest volume) process type involving the listed substance.

CBI

☐ Process type Oil Modified Polyurethane Resin Solution Batch Process

☒ Mark (X) this box if you attach a continuation sheet.

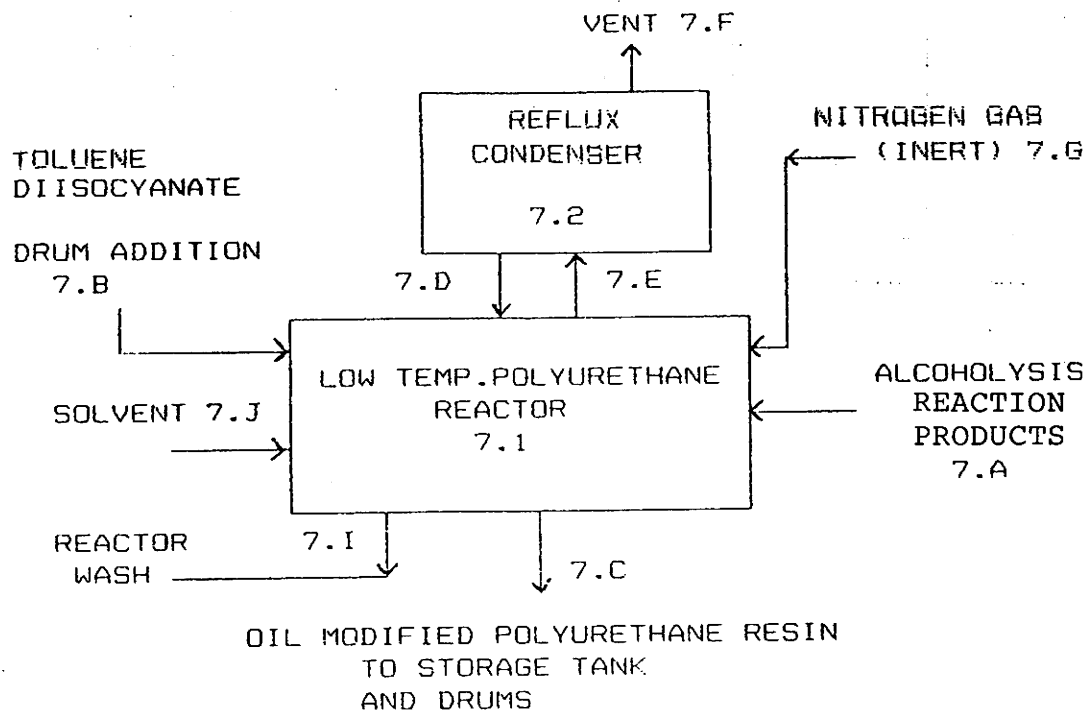
7.03 In accordance with the instructions, provide a process block flow diagram showing all process emission streams and emission points that contain the listed substance and which, if combined, would total at least 90 percent of all facility emissions if not treated before emission into the environment. If all such emissions are released from one process type, provide a process block flow diagram using the instructions for question 7.01. If all such emissions are released from more than one process type, provide a process block flow diagram showing each process type as a separate block.

CBI

☐ Process type Dil Modified Polyurethane Resin Solution Batch Process

☒ Mark (X) this box if you attach a continuation sheet.

QUESTION: 7.03 PROCESS TYPE: OIL MODIFIED POLYURETHANE
RESIN SOLUTION



- 7.04 Describe the typical equipment types for each unit operation identified in your process block flow diagram(s). If a process block flow diagram is provided for more than one process type, photocopy this question and complete it separately for each process type.

CBI

☐ Process type Dil Modified Polyurethane Resin Solution Batch Process

Unit Operation ID Number	Typical Equipment Type	Operating Temperature Range (°C)	Operating Pressure Range (mm Hg)	Vessel Composition
<u>7.1</u>	<u>Low Temperature Polyurethane Reaction</u>	<u>25-175°C</u>	<u>Atmospheric</u>	<u>Stainless Steel</u>
<u>7.2</u>	<u>Reflux Condenser</u>	<u>25-175°C</u>	<u>Atmospheric</u>	<u>Stainless Steel</u>

☐ Mark (X) this box if you attach a continuation sheet.

7.05 Describe each process stream identified in your process block flow diagram(s). If a process block flow diagram is provided for more than one process type, photocopy this question and complete it separately for each process type.

CBI

☐ Process type Oil Modified Polyurethane Resin Solution

Process Stream ID Code	Process Stream Description	Physical State ¹	Stream Flow (kg/yr)
<u>7.A</u>	<u>Alcoholysis Reaction Product</u>	<u>OL</u>	<u>80,000</u>
<u>7.B</u>	<u>T.D.I. Addition</u>	<u>OL</u>	<u>29,000</u>
<u>7.C</u>	<u>Oil Modified Polyurethane Resin Solution</u>	<u>OL</u>	<u>204,000</u>
<u>7.D</u>	<u>Condensed Vapor Return</u>	<u>OL</u>	<u>NA</u>
<u>7.E</u>	<u>Vapor to Condensor</u>	<u>GC</u>	<u>NA</u>
<u>7.F</u>	<u>Condensor Vent</u>	<u>GU</u>	<u>NA</u>
<u>7.G</u>	<u>Inert Gas (Nitrogen)</u>	<u>GU</u>	<u>9,720</u>
<u>7.J</u>	<u>Solvent Addition</u>	<u>OL</u>	<u>92,000</u>
<u>7.I</u>	<u>Reactor Wash</u>	<u>OL</u>	<u>3,500</u>

¹Use the following codes to designate the physical state for each process stream:

- GC = Gas (condensable at ambient temperature and pressure)
- GU = Gas (uncondensable at ambient temperature and pressure)
- SO = Solid
- SY = Sludge or slurry
- AL = Aqueous liquid
- OL = Organic liquid
- IL = Immiscible liquid (specify phases, e.g., 90% water, 10% toluene)

☐ Mark (X) this box if you attach a continuation sheet.

7.06 Characterize each process stream identified in your process block flow diagram(s).
 A If a process block flow diagram is provided for more than one process type, photocopy this question and complete it separately for each process type. (Refer to the CBI instructions for further explanation and an example.)

☐ Process type Oil Modified Polyurethane Resin Solution

a.	b.	c.	d.	e.
Process Stream ID Code	Known Compounds ¹	Concentrations ^{2,3} (% or ppm)	Other Expected Compounds	Estimated Concentrations (% or ppm)
<u>7.A</u>	<u>Vegetable Oil Alcoholysis</u>			
	<u>Product</u>	<u>100% EW</u>	<u>NA</u>	<u>NA</u>
<u>7.B</u>	<u>2,4 T.D.I.</u>	<u>80% AW</u>	<u>NA</u>	<u>NA</u>
	<u>2,6 T.D.I.</u>	<u>20% AW</u>	<u>NA</u>	<u>NA</u>
<u>7.C</u>	<u>Oil Modified</u>			
	<u>Polyurethane Resin</u>	<u>49-59% AW</u>	<u>NA</u>	<u>NA</u>
	<u>Solvent</u>	<u>51-41% AW</u>	<u>NA</u>	<u>NA</u>

7.06 continued below

☒ Mark (X) this box if you attach a continuation sheet.

PART A RESIDUAL TREATMENT PROCESS DESCRIPTION

8.01 In accordance with the instructions, provide a residual treatment block flow diagram which describes the treatment process used for residuals identified in question 7.01.

CBI

☐ Process type

☒ Mark (X) this box if you attach a continuation sheet.

PART B RESIDUAL GENERATION AND CHARACTERIZATION

8.05 Characterize each process stream identified in your residual treatment block flow diagram(s). If a residual treatment block flow diagram is provided for more than one process type, photocopy this question and complete it separately for each process type. (Refer to the instructions for further explanation and an example.)

☐ Process type

a.	b.	c.	d.	e.	f.	g.
Stream ID Code	Type of Hazardous Waste ¹	Physical State of Residual ²	Known Compounds ³	Concentrations ^{4,5,6} (% or ppm)	Other Expected Compounds	Estimated Concentrations (% or ppm)
8-A	C, T	AL	Water	99 EW		
			Ammonia	<1.5% EW		
8-B	I, T	OL	Polyurethane Polymer	10% EW		
			Solvent	90% EW		
8-C	I, T	OL	Polyurethane Polymer	10% EW		
			Solvent	90% EW		
8-D	C, T	SY	Water	9% EW		
			Ammonia	1% EW		
			Urea Compounds	90% EW		

8.05 continued below

☒ Mark (X) this box if you attach a continuation sheet.

- 8.06 Characterize each process stream identified in your residual treatment block flow diagram(s). If a residual treatment block flow diagram is provided for more than one process type, photocopy this question and complete it separately for each process type. (Refer to the instructions for further explanation and an example.)

CBI

☐ Process type Oil Modified Polyurethane Resin Solution

a.	b.	c.	d.	e.	f.	g.
Stream ID Code	Waste Description Code ¹	Management Method Code ²	Residual Quantities (kg/yr)	Management of Residual (%) On-Site Off-Site	Costs for Off-Site Management (per kg)	Changes in Management Methods
<u>8.A</u>	<u>A09</u>	<u>M-6</u>	<u>N.A.</u>	<u>N.A.</u> <u>NA</u>	<u>N.A.</u>	<u>N.A.</u>
<u>8.B</u>	<u>B66</u>	<u>2TR</u> <u>Recycle</u>	<u>3,300</u>	<u>100%</u>	<u>NA</u>	<u>N.A.</u>
<u>8.C</u>	<u>B66</u>	<u>1RF</u>	<u>200</u>		<u>100%</u>	<u>\$.80</u>
<u>8.D</u>	<u>B-79</u>	<u>1D</u>	<u>100</u>		<u>100%</u>	<u>\$.80</u>

¹ Use the codes provided in Exhibit 8-1 to designate the waste descriptions

² Use the codes provided in Exhibit 8-2 to designate the management methods

M-6 Drum Reconditioner

B-79 Solid Urea Sludge Compounds

☒ Mark (X) this box if you attach a continuation sheet.

8.22 Describe the combustion chamber design parameters for each of the three largest (by capacity) incinerators that are used on-site to burn the residuals identified in your process block or residual treatment block flow diagram(s).

CBI

☐

Incinerator	Combustion Chamber Temperature (°C)		Location of Temperature Monitor		Residence Time In Combustion Chamber (seconds)	
	Primary	Secondary	Primary	Secondary	Primary	Secondary
1						
2						
3						

Indicate if Office of Solid Waste survey has been submitted in lieu of response by circling the appropriate response.

Yes 1

No 2

8.23 Complete the following table for the three largest (by capacity) incinerators that are used on-site to burn the residuals identified in your process block or residual treatment block flow diagram(s).

CBI

☐

Incinerator	Air Pollution Control Device ¹	Types of Emissions Data Available
1	N.A.	N.A.
2		
3		

Indicate if Office of Solid Waste survey has been submitted in lieu of response by circling the appropriate response.

Yes 1

(No) 2

¹Use the following codes to designate the air pollution control device:

S = Scrubber (include type of scrubber in parenthesis)

E = Electrostatic precipitator

O = Other (specify) _____

☐ Mark (X) this box if you attach a continuation sheet.

PART A EMPLOYMENT AND POTENTIAL EXPOSURE PROFILE

9.01 Mark (X) the appropriate column to indicate whether your company maintains records on the following data elements for hourly and salaried workers. Specify for each data element the year in which you began maintaining records and the number of years the records for that data element are maintained. (Refer to the instructions for further explanation and an example.)

CBI

☐

Data Element	Data are Maintained for:		Year in Which Data Collection Began	Number of Years Records Are Maintained
	Hourly Workers	Salaried Workers		
Date of hire	X	X	1946	Permanent
Age at hire	X	X	1946	Permanent
① Work history of individual before employment at your facility	X	X	1985	Permanent Medical Record
Sex	X	NA	1985	Permanent
Race	X	NA	1985	Permanent
Job titles	X	X	1946	Permanent
Start date for each job title	X	X	1946	Permanent
End date for each job title	X	X	1946	Permanent
Work area industrial hygiene monitoring data	NA	NA	NA	NA
Personal employee monitoring data	NA	NA	NA	NA
Employee medical history	X	NA	1982	Permanent Medical Record
Employee smoking history	NA	NA	1982	Permanent Medical Record
Accident history	X	X	1972	Permanent
Retirement date	X	X	1946	Permanent
Termination date	X	X	1946	Permanent
Vital status of retirees	NA	NA	NA	NA
Cause of death data	NA	NA	NA	NA

☐ Mark (X) this box if you attach a continuation sheet.

9.02 In accordance with the instructions, complete the following table for each activity in which you engage.

CBI

☐

a.	b.	c.	d.	e.
<u>Activity</u>	<u>Process Category</u>	<u>Yearly Quantity (kg)</u>	<u>Total Workers</u>	<u>Total Worker-Hours</u>
Manufacture of the listed substance	Enclosed	_____	_____	_____
	Controlled Release	_____	_____	_____
	Open	_____	_____	_____
On-site use as reactant	Enclosed	29,000	12	2176
	Controlled Release	_____	_____	_____
	Open	29,000	—	2176
On-site use as nonreactant	Enclosed	_____	_____	_____
	Controlled Release	_____	_____	_____
	Open	_____	_____	_____
On-site preparation of products	Enclosed	_____	_____	_____
	Controlled Release	_____	_____	_____
	Open	_____	_____	_____

☐ Mark (X) this box if you attach a continuation sheet.

9.03 Provide a descriptive job title for each labor category at your facility that encompasses workers who may potentially come in contact with or be exposed to the listed substance.

CBI

☐

Labor Category

Descriptive Job Title

A

Supervisor

B

Reactor Operator

C

Charging station Operator

D

Quality Control Technician

E

F

G

H

I

J

☐ Mark (X) this box if you attach a continuation sheet.

9.04 In accordance with the instructions, provide your process block flow diagram(s) and indicate associated work areas.

CBI

☐ Process type Oil Modified Polyurethane Rain Sealer Patch
process

☒ Mark (X) this box if you attach a continuation sheet.

9.05 Describe the various work area(s) shown in question 9.04 that encompass workers who may potentially come in contact with or be exposed to the listed substance. Add any additional areas not shown in the process block flow diagram in question 7.01 or 7.02. Photocopy this question and complete it separately for each process type.

CBI

☐ Process type Oil Modified Polyurethane Resin Solution

Work Area ID

Description of Work Areas and Worker Activities

1	<u>Processing Building - Pumping out drums of T.D.I.</u>
2	<u>Outside area for Drum Neutralization of T.D.I.</u>
3	<u>Quality Control Lab - Analysis of inprocess samples</u>
4	
5	
6	
7	
8	
9	
10	

☐ Mark (X) this box if you attach a continuation sheet.

9.06 Complete the following table for each work area identified in question 9.05, and for each labor category at your facility that encompasses workers who may potentially come in contact with or be exposed to the listed substance. Photocopy this question and complete it separately for each process type and work area.

☐ Process type Oil Modified Polyurethane Resin Solution
 Work area Processing Room ①

Labor Category	Number of Workers Exposed	Mode of Exposure (e.g., direct skin contact)	Physical State of Listed Substance ¹	Average Length of Exposure Per Day ²	Number of Days per Year Exposed
<u>A</u>	<u>2</u>	<u>Inhalation</u>	<u>GC</u>	<u>A</u>	<u>20</u>
<u>B</u>	<u>7</u>	<u>Inhalation</u>	<u>GC</u>	<u>B</u>	<u>20</u>
<u>C</u>	<u>3</u>	<u>Inhalation</u>	<u>GC</u>	<u>C</u>	<u>20</u>
<u>C</u>	<u>3</u>	<u>SKIN CONTACT</u>	<u>OL</u>	<u>C</u>	<u>20</u>

¹Use the following codes to designate the physical state of the listed substance at the point of exposure:

GC = Gas (condensable at ambient temperature and pressure)
 GU = Gas (uncondensable at ambient temperature and pressure; includes fumes, vapors, etc.)
 SO = Solid

SY = Sludge or slurry
 AL = Aqueous liquid
OL = Organic liquid
 IL = Immiscible liquid (specify phases, e.g., 90% water, 10% toluene)

²Use the following codes to designate average length of exposure per day:

A = 15 minutes or less
 B = Greater than 15 minutes, but not exceeding 1 hour
 C = Greater than one hour, but not exceeding 2 hours

D = Greater than 2 hours, but not exceeding 4 hours
 E = Greater than 4 hours, but not exceeding 8 hours
 F = Greater than 8 hours

☒ Mark (X) this box if you attach a continuation sheet.

9.06 Complete the following table for each work area identified in question 9.05, and for each labor category at your facility that encompasses workers who may potentially come in contact with or be exposed to the listed substance. Photocopy this question and complete it separately for each process type and work area.

☐ Process type Oil Modified Polyurethane Resin Solution

Work area Drum Neutralization ②

Labor Category	Number of Workers Exposed	Mode of Exposure (e.g., direct skin contact)	Physical State of Listed Substance ¹	Average Length of Exposure Per Day ²	Number of Days per Year Exposed
<u>C</u>	<u>3</u>	<u>Inhalation</u>	<u>GC</u>	<u>B</u>	<u>20</u>
<u>C</u>	<u>3</u>	<u>SKIN CONTACT</u>	<u>OL</u>	<u>B</u>	<u>20</u>

¹Use the following codes to designate the physical state of the listed substance at the point of exposure:

GC = Gas (condensable at ambient temperature and pressure)
 GU = Gas (uncondensable at ambient temperature and pressure; includes fumes, vapors, etc.)
 SO = Solid

SY = Sludge or slurry
 AL = Aqueous liquid
 OL = Organic liquid
 IL = Immiscible liquid (specify phases, e.g., 90% water, 10% toluene)

²Use the following codes to designate average length of exposure per day:

A = 15 minutes or less
 B = Greater than 15 minutes, but not exceeding 1 hour
 C = Greater than one hour, but not exceeding 2 hours

D = Greater than 2 hours, but not exceeding 4 hours
 E = Greater than 4 hours, but not exceeding 8 hours
 F = Greater than 8 hours

☒ Mark (X) this box if you attach a continuation sheet.

9.06 Complete the following table for each work area identified in question 9.05, and for each labor category at your facility that encompasses workers who may potentially come in contact with or be exposed to the listed substance. Photocopy this question and complete it separately for each process type and work area.

CBI

☐ Process type Oil Modified Polyurethane Resin Solution

Work area Quality Control Lab. ③

Labor Category	Number of Workers Exposed	Mode of Exposure (e.g., direct skin contact)	Physical State of Listed Substance ¹	Average Length of Exposure Per Day ²	Number of Days per Year Exposed
<u>D</u>	<u>1</u>	<u>Inhalation</u>	<u>GC</u>	<u>B</u>	<u>20</u>

¹Use the following codes to designate the physical state of the listed substance at the point of exposure:

GC = Gas (condensable at ambient temperature and pressure)
 GU = Gas (uncondensable at ambient temperature and pressure; includes fumes, vapors, etc.)
 SO = Solid

SY = Sludge or slurry
 AL = Aqueous liquid
 OL = Organic liquid
 IL = Immiscible liquid (specify phases, e.g., 90% water, 10% toluene)

²Use the following codes to designate average length of exposure per day:

A = 15 minutes or less
 B = Greater than 15 minutes, but not exceeding 1 hour
 C = Greater than one hour, but not exceeding 2 hours

D = Greater than 2 hours, but not exceeding 4 hours
 E = Greater than 4 hours, but not exceeding 8 hours
 F = Greater than 8 hours

☐ Mark (X) this box if you attach a continuation sheet.

9.07 For each labor category represented in question 9.06, indicate the 8-hour Time Weighted Average (TWA) exposure levels and the 15-minute peak exposure levels. Photocopy this question and complete it separately for each process type and work area.

CBI

☐ Process type Oil Modified Polyurethane Resin Solution
 Work area ① Process Room

Labor Category	8-hour TWA Exposure Level (ppm, mg/m ³ , other-specify)	15-Minute Peak Exposure Level (ppm, mg/m ³ , other-specify)
<u>A</u>	<u>UK</u>	<u>UK</u>
<u>B</u>	<u>UK</u>	<u>UK</u>
<u>C</u>	<u>UK</u>	<u>UK</u>

☒ Mark (X) this box if you attach a continuation sheet.

9.07 For each labor category represented in question 9.06, indicate the 8-hour Time Weighted Average (TWA) exposure levels and the 15-minute peak exposure levels. Photocopy this question and complete it separately for each process type and work area.

CBI

☐ Process type Oil Modified Polyurethane Resin Solution

Work area Drum Neutralization (2)

<u>Labor Category</u>	<u>8-hour TWA Exposure Level (ppm, mg/m³, other-specify)</u>	<u>15-Minute Peak Exposure Level (ppm, mg/m³, other-specify)</u>
<u>C</u>	<u>UK</u>	<u>UK</u>

☒ Mark (X) this box if you attach a continuation sheet.

9.07 For each labor category represented in question 9.06, indicate the 8-hour Time Weighted Average (TWA) exposure levels and the 15-minute peak exposure levels. Photocopy this question and complete it separately for each process type and work area.

CBI

☐ Process type Oil Modified Polyurethane Resin Solution
 Work area Quality Control Lab. (3)

<u>Labor Category</u>	<u>8-hour TWA Exposure Level (ppm, mg/m³, other-specify)</u>	<u>15-Minute Peak Exposure Level (ppm, mg/m³, other-specify)</u>
<u>D</u>	<u>UK</u>	<u>UK</u>

☐ Mark (X) this box if you attach a continuation sheet.

PART B WORK PLACE MONITORING PROGRAM

9.08 If you monitor worker exposure to the listed substance, complete the following table.

CBI

☐

Sample/Test	Work Area ID	Testing Frequency (per year)	Number of Samples (per test)	Who Samples ¹	Analyzed In-House (Y/N)	Number of Years Records Maintained
Personal breathing zone	NA	NA	NA	NA	N	NA
General work area (air)	NA	NA	NA	NA	N	NA
Wipe samples	NA	NA	NA	NA	N	NA
Adhesive patches	NA	NA	NA	NA	N	NA
Blood samples	NA	NA	NA	NA	N	NA
Urine samples	NA	NA	NA	NA	N	NA
Respiratory samples	NA	NA	NA	NA	N	NA
Allergy tests	NA	NA	NA	NA	N	NA
Other (specify)	1,2					
Annual Physicals		1	1	D	N	Permanent
Other (specify)						
Annual Physical	3	ONCE EVERY 2 years	1	D	N	Permanent
Other (specify)						

¹Use the following codes to designate who takes the monitoring samples:

- A = Plant industrial hygienist
- B = Insurance carrier
- C = OSHA consultant
- D = Other (specify) Local Hospital

☐ Mark (X) this box if you attach a continuation sheet.

9.09 For each sample type identified in question 9.08, describe the type of sampling and analytical methodology used for each type of sample.

Sample Type	Sampling and Analytical Methodology
NA	NA

9.10 If you conduct personal and/or ambient air monitoring for the listed substance, specify the following information for each equipment type used.

CBI

Equipment Type ¹	Detection Limit ²	Manufacturer	Averaging Time (hr)	Model Number
NA	NA	NA	NA	NA

¹Use the following codes to designate personal air monitoring equipment types:

- A = Passive dosimeter
- B = Detector tube
- C = Charcoal filtration tube with pump
- D = Other (specify) _____

Use the following codes to designate ambient air monitoring equipment types:

- E = Stationary monitors located within work area
- F = Stationary monitors located within facility
- G = Stationary monitors located at plant boundary
- H = Mobile monitoring equipment (specify) _____
- I = Other (specify) _____

²Use the following codes to designate detection limit units:

- A = ppm
- B = Fibers/cubic centimeter (f/cc)
- C = Micrograms/cubic meter (μm^3)

☐ Mark (X) this box if you attach a continuation sheet.

9.11 If you conduct routine medical tests for monitoring the health effects of exposure to the listed substance, specify the type and frequency of the tests.

CBI

☐

Test Description

Frequency
(weekly, monthly, yearly, etc.)

☐ Mark (X) this box if you attach a continuation sheet.

PART C ENGINEERING CONTROLS

9.12 Describe the engineering controls that you use to reduce or eliminate worker exposure to the listed substance. Photocopy this question and complete it separately for each process type and work area.

CBI

[] Process type Oil Modified Polyurethane Resin ^{Solution}
 Work area ① Process Room

<u>Engineering Controls</u>	<u>Used (Y/N)</u>	<u>Year Installed</u>	<u>Upgraded (Y/N)</u>	<u>Year Upgraded</u>
Ventilation:				
Local exhaust	<u>N</u>	<u></u>	<u>N</u>	<u></u>
General dilution	<u>Y</u>	<u>1973</u>	<u>N</u>	<u></u>
Other (specify) <u></u>	<u></u>	<u></u>	<u>N</u>	<u></u>
Vessel emission controls	<u>Y</u>	<u>1973</u>	<u>N</u>	<u></u>
Mechanical loading or packaging equipment	<u>N</u>	<u></u>	<u>N</u>	<u></u>
Other (specify) <u></u>	<u></u>	<u></u>	<u></u>	<u></u>

[] Mark (X) this box if you attach a continuation sheet.

PART C ENGINEERING CONTROLS

9.12 Describe the engineering controls that you use to reduce or eliminate worker exposure to the listed substance. Photocopy this question and complete it separately for each process type and work area.

CBI

☐ Process type Oil Modified Polyurethane Resin Solution
 Work area (2) Drum Neutralization

<u>Engineering Controls</u>	<u>Used (Y/N)</u>	<u>Year Installed</u>	<u>Upgraded (Y/N)</u>	<u>Year Upgraded</u>
Ventilation:				
Local exhaust	<u>N</u>	<u> </u>	<u>N</u>	<u> </u>
General dilution	<u>N</u>	<u> </u>	<u>N</u>	<u> </u>
Other (specify) <u>Out Doors</u>	<u>Y</u>	<u> </u>	<u>N</u>	<u> </u>
Vessel emission controls	<u>N</u>	<u> </u>	<u>N</u>	<u> </u>
Mechanical loading or packaging equipment	<u>N</u>	<u> </u>	<u>N</u>	<u> </u>
Other (specify) <u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>

☐ Mark (X) this box if you attach a continuation sheet.

PART C ENGINEERING CONTROLS

9.12 Describe the engineering controls that you use to reduce or eliminate worker exposure to the listed substance. Photocopy this question and complete it separately for each process type and work area.

CBI

☐ Process type Oil Modified Polyurethane Resin Solution
 Work area (3) Quality Control

<u>Engineering Controls</u>	<u>Used (Y/N)</u>	<u>Year Installed</u>	<u>Upgraded (Y/N)</u>	<u>Year Upgraded</u>
Ventilation:				
Local exhaust	<u>Y</u>	<u>1982</u>	<u>N</u>	
General dilution	<u>Y</u>	<u>1982</u>	<u>N</u>	
Other (specify)				
Vessel emission controls	<u>N</u>		<u>N</u>	
Mechanical loading or packaging equipment	<u>N</u>		<u>N</u>	
Other (specify)				

☐ Mark (X) this box if you attach a continuation sheet.

9.13 Describe all equipment or process modifications you have made within the 3 years prior to the reporting year that have resulted in a reduction of worker exposure to the listed substance. For each equipment or process modification described, state the percentage reduction in exposure that resulted. Photocopy this question and complete it separately for each process type and work area.

CBI

☐ Process type Oil Modified Polyurethane Resin Solution
Work area ① Process Room

Equipment or Process Modification	Reduction in Worker Exposure Per Year (%)
<u>Change to Air Diaphragm Pump</u>	<u>25% estimate</u>
_____	_____
_____	_____
_____	_____

☒ Mark (X) this box if you attach a continuation sheet.

9.13 Describe all equipment or process modifications you have made within the 3 years prior to the reporting year that have resulted in a reduction of worker exposure to the listed substance. For each equipment or process modification described, state the percentage reduction in exposure that resulted. Photocopy this question and complete it separately for each process type and work area.

CBI

☐ Process type Oil Modified Polyurethane Resin Solution
 Work area ② Drum Neutralization

Equipment or Process Modification	Reduction in Worker Exposure Per Year (%)
<u>NONE</u>	<u>N.A.</u>

☒ Mark (X) this box if you attach a continuation sheet.

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- 9.13 Describe all equipment or process modifications you have made within the 3 years prior to the reporting year that have resulted in a reduction of worker exposure to the listed substance. For each equipment or process modification described, state the percentage reduction in exposure that resulted. Photocopy this question and complete it separately for each process type and work area.

CBI

☐ Process type On Modified Polyurethane Resin Solution
Work area (3) Quality Control

Equipment or Process Modification	Reduction in Worker Exposure Per Year (%)
<u>NONE</u>	<u>N.A.</u>

☐ Mark (X) this box if you attach a continuation sheet.

PART D PERSONAL PROTECTIVE AND SAFETY EQUIPMENT

9.14 Describe the personal protective and safety equipment that your workers wear or use in each work area in order to reduce or eliminate their exposure to the listed substance. Photocopy this question and complete it separately for each process type and work area.

CBI

[] Process type Oil Modified Polyurethane Resin Solution
Work area ① Process Room

<u>Equipment Types</u>	<u>Wear or Use (Y/N)</u>
Respirators	<u>Y</u>
Safety goggles/glasses	<u>Y</u>
Face shields	<u>N</u>
Coveralls	<u>Y</u>
Bib aprons	<u>N</u>
Chemical-resistant gloves	<u>Y</u>
Other (specify)	
_____	_____
_____	_____

☒ Mark (X) this box if you attach a continuation sheet.

PART D PERSONAL PROTECTIVE AND SAFETY EQUIPMENT

9.14 Describe the personal protective and safety equipment that your workers wear or use in each work area in order to reduce or eliminate their exposure to the listed substance. Photocopy this question and complete it separately for each process type and work area.

CBI

☐ Process type Oil Modified Poly urethane Resin Solution
Work area ② Drum Neutralization

<u>Equipment Types</u>	<u>Wear or Use (Y/N)</u>
Respirators	<u>Y</u>
Safety goggles/glasses	<u>Y</u>
Face shields	<u>N</u>
Coveralls	<u>Y</u>
Bib aprons	<u>N</u>
Chemical-resistant gloves	<u>Y</u>
Other (specify)	
_____	_____
_____	_____

☒ Mark (X) this box if you attach a continuation sheet.

PART D PERSONAL PROTECTIVE AND SAFETY EQUIPMENT

9.14 Describe the personal protective and safety equipment that your workers wear or use in each work area in order to reduce or eliminate their exposure to the listed substance. Photocopy this question and complete it separately for each process type and work area.

CBI

☐ Process type Oil Modified Polyurethane Resin Solution
Work area ③ Quality Control Lab.

<u>Equipment Types</u>	<u>Wear or Use (Y/N)</u>
Respirators	<u>N</u>
Safety goggles/glasses	<u>Y</u>
Face shields	<u>N</u>
Coveralls	<u>N</u>
Bib aprons	<u>N</u>
Chemical-resistant gloves	<u>N</u>
Other (specify)	
_____	_____
_____	_____

☐ Mark (X) this box if you attach a continuation sheet.

9.15 If workers use respirators when working with the listed substance, specify for each process type, the work areas where the respirators are used, the type of respirators used, the average usage, whether or not the respirators were fit tested, and the type and frequency of the fit tests. Photocopy this question and complete it separately for each process type.

CBI

☐ Process type Oil Modified Polyurethane Resin Solution

Work Area	Respirator Type	Average Usage	Fit Tested (Y/N)	Type of Fit Test ²	Frequency of Fit Tests (per year)
1	Supplied Air pos. Pressure Demand	B	Y	QL	1
1	Neg. Press. Organic Vapor	A	Y	QL	1
2	Supplied Air pos. Pressure Demand	B	Y	QL	1
1	5min. Emergency Air Supplied	E	N	NA	N.A.

Note: All Respirator NIOSH Approved

¹Use the following codes to designate average usage:

A = Daily
B = Weekly
C = Monthly
D = Once a year
E = Other (specify) _____

²Use the following codes to designate the type of fit test:

QL = Qualitative
QT = Quantitative

☐ Mark (X) this box if you attach a continuation sheet.

PART E WORK PRACTICES

- 9.19 Describe all of the work practices and administrative controls used to reduce or eliminate worker exposure to the listed substance (e.g., restrict entrance only to authorized workers, mark areas with warning signs, insure worker detection and monitoring practices, provide worker training programs, etc.). Photocopy this question and complete it separately for each process type and work area.

CBI

☐

Process type Oil Modified Poly Urethane Resin Solution
 Work area 1, 2, 3

1. Respirator Protection Program 5. Limit Access
 2. Placarding
 3. Training Programs
 4. Changing Room and Laundry Service

- 9.20 Indicate (X) how often you perform each housekeeping task used to clean up routine leaks or spills of the listed substance. Photocopy this question and complete it separately for each process type and work area.

Process type Oil Modified Polyurethane Resin Solution
 Work area 1

<u>Housekeeping Tasks</u>	<u>Less Than Once Per Day</u>	<u>1-2 Times Per Day</u>	<u>3-4 Times Per Day</u>	<u>More Than 4 Times Per Day</u>
Sweeping	_____	_____	_____	_____
Vacuuming	_____	_____	_____	_____
Water flushing of floors	_____	_____	_____	_____
Other (specify)	_____	_____	_____	_____
<u>Immediate clean up After Use</u>	_____	<u>X</u>	_____	_____

☐ Mark (X) this box if you attach a continuation sheet.

21 no answer 22 present 23 no answer

9.21 Do you have a written medical action plan for responding to routine or emergency exposure to the listed substance?

Routine exposure

Yes 1

No 2

Emergency exposure

Yes 1

No 2

If yes, where are copies of the plan maintained?

Routine exposure: _____

Emergency exposure: _____

9.22 Do you have a written leak and spill cleanup plan that addresses the listed substance? Circle the appropriate response.

☒ Yes *Attn: Secretary of Health* 1

No 2

If yes, where are copies of the plan maintained? _____

Has this plan been coordinated with state or local government response organizations? Circle the appropriate response.

Yes 1

☒ No *But Plan has been Filed with Local Emergency Response Organizations.* 2

9.23 Who is responsible for monitoring worker safety at your facility? Circle the appropriate response.

Plant safety specialist 1

Insurance carrier 2

OSHA consultant 3

Other (specify) _____ 4

☐ Mark (X) this box if you attach a continuation sheet.

SECTION 10 ENVIRONMENTAL RELEASE

General Instructions:

Complete Part E (questions 10.23-10.35) for each non-routine release involving the listed substance that occurred during the reporting year. Report on all releases that are equal to or greater than the listed substance's reportable quantity value, RQ, unless the release is federally permitted as defined in 42 U.S.C. 9601, or is specifically excluded under the definition of release as defined in 40 CFR 302.3(22). Reportable quantities are codified in 40 CFR Part 302. If the listed substance is not a hazardous substance under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and, thus, does not have an RQ, then report releases that exceed 2,270 kg. If such a substance however, is designated as a CERCLA hazardous substance, then report those releases that are equal to or greater than the RQ. The facility may have answered these questions or similar questions under the Agency's Accidental Release Information Program and may already have this information readily available. Assign a number to each release and use this number throughout this part to identify the release. Releases over more than a 24-hour period are not single releases, i.e., the release of a chemical substance equal to or greater than an RQ must be reported as a separate release for each 24-hour period the release exceeds the RQ.

For questions 10.25-10.35, answer the questions for each release identified in question 10.23. Photocopy these questions and complete them separately for each release.

PART A GENERAL INFORMATION

10.01 Where is your facility located? Circle all appropriate responses.

CBI

- ☐ Industrial area ①
- Urban area ②
- Residential area 3
- Agricultural area 4
- Rural area 5
- Adjacent to a park or a recreational area 6
- Within 1 mile of a navigable waterway ⑦
- Within 1 mile of a school, university, hospital, or nursing home facility 8
- Within 1 mile of a non-navigable waterway ⑨
- Other (specify) _____ 10

☐ Mark (X) this box if you attach a continuation sheet.

10.02 Specify the exact location of your facility (from central point where process unit is located) in terms of latitude and longitude or Universal Transverse Mercader (UTM) coordinates.

Latitude 045 ° 33 ' 10 "

Longitude 122 ° 43 ' 30 "

UTM coordinates Zone _____, Northing _____, Easting _____

10.03 If you monitor meteorological conditions in the vicinity of your facility, provide the following information.

Average annual precipitation _____ inches/year

Predominant wind direction _____

10.04 Indicate the depth to groundwater below your facility.

Depth to groundwater _____ meters

10.05 For each on-site activity listed, indicate (Y/N/NA) all routine releases of the listed substance to the environment. (Refer to the instructions for a definition of CBI Y, N, and NA.)

☐

On-Site Activity	Environmental Release		
	Air	Water	Land
Manufacturing	<u>NA</u>	<u>NA</u>	<u>NA</u>
Importing	<u>NA</u>	<u>NA</u>	<u>NA</u>
Processing	<u>Y</u>	<u>N</u>	<u>N</u>
Otherwise used	<u>NA</u>	<u>NA</u>	<u>NA</u>
Product or residual storage	<u>Y</u>	<u>N</u>	<u>N</u>
Disposal	<u>NA</u>	<u>NA</u>	<u>NA</u>
Transport	<u>NA</u>	<u>NA</u>	<u>NA</u>

☐ Mark (X) this box if you attach a continuation sheet.

10.06 Provide the following information for the listed substance and specify the level of precision for each item. (Refer to the instructions for further explanation and an example.)

CBI

☐

Quantity discharged to the air 1 kg/yr \pm 50 %

Quantity discharged in wastewaters 0 kg/yr \pm 50 %

Quantity managed as other waste in on-site treatment, storage, or disposal units 57 kg/yr \pm 50 %

Quantity managed as other waste in off-site treatment, storage, or disposal units 0 kg/yr \pm %

☐ Mark (X) this box if you attach a continuation sheet.

10.08 Describe the control technologies used to minimize release of the listed substance for each process stream containing the listed substance as identified in your process block or residual treatment block flow diagram(s). Photocopy this question and complete it separately for each process type.

CBI

☐ Process type Oil Modified Polyurethane Resin Solution

<u>Stream ID Code</u>	<u>Control Technology</u>	<u>Percent Efficiency</u>
<u>7.F</u>	<u>No Control used</u>	<u>0</u>
<u>7.I + 7.C</u>	<u>Alcohol Used to Terminate T.D.I.</u>	<u>100%</u>
<u>8.A + 8.F</u>	<u>Chemical Neutralization Used</u>	<u>100%</u>

☐ Mark (X) this box if you attach a continuation sheet.

PART B RELEASE TO AIR

- 10.09 **Point Source Emissions** -- Identify each emission point source containing the listed substance in terms of a Stream ID Code as identified in your process block or residual treatment block flow diagram(s), and provide a description of each point source. Do not include raw material and product storage vents, or fugitive emission sources (e.g., equipment leaks). Photocopy this question and complete it separately for each process type.

CBI

☐

Process type Oil Modified Polyurethane Resin Solution

Point Source
ID Code

Description of Emission Point Source

7 F

Mix Tank Condensor Vent Line

7.B

TDI Drum Pumpout

8.

TDI Drum Neutralization Process

☐ Mark (X) this box if you attach a continuation sheet.

☐ Mark (X) this box if you attach a continuation sheet.

10.10 Emission Characteristics -- Characterize the emissions for each Point Source ID Code identified in question 10.09 by completing the following table.

CBI

Point Source ID Code	Physical State ¹	Average Emissions (kg/day)	Frequency ² (days/yr)	Duration ³ (min/day)	Average Emission Factor ⁴	Maximum Emission Rate (kg/min)	Maximum Emission Rate Frequency (events/yr)	Maximum Emission Rate Duration (min/event)
7.F	V	.03	20	420	0.000019	0.000063	20	60
7.B	V	.0005	20	60	0.000003	0.0000083	20	60
8.1	V	.0015	20	20	0.000009	0.00074	20	20

¹Use the following codes to designate physical state at the point of release:

G = Gas; V = Vapor; P = Particulate; A = Aerosol; O = Other (specify) _____

²Frequency of emission at any level of emission

³Duration of emission at any level of emission

⁴Average Emission Factor -- Provide estimated (\pm 25 percent) emission factor (kg of emission per kg of production of listed substance)

10.11 Stack Parameters -- Identify the stack parameters for each Point Source ID Code identified in question 10.09 by completing the following table.

CBI

☐

Point Source ID Code	Stack Height(m)	Stack Inner Diameter (at outlet) (m)	Exhaust Temperature (°C)	Emission Exit Velocity (m/sec)	Building Height(m) ¹	Building Width(m) ²	Vent Type ³
7.F	8.5	.075	22	.16	7	15	V
7.B	1	.05	20	.06	7	15	H
8.1	1	.05	20	.54	7	15	H

¹Height of attached or adjacent building

²Width of attached or adjacent building

³Use the following codes to designate vent type:

H = Horizontal

V = Vertical

☐ Mark (X) this box if you attach a continuation sheet.

10.12 If the listed substance is emitted in particulate form, indicate the particle size distribution for each Point Source ID Code identified in question 10.09. Photocopy this question and complete it separately for each emission point source.

CBI

☐

Point source ID code N.A.

Size Range (microns)

Mass Fraction (% ± % precision)

< 1

≥ 1 to < 10

≥ 10 to < 30

≥ 30 to < 50

≥ 50 to < 100

≥ 100 to < 500

≥ 500

Total = 100%

☐ Mark (X) this box if you attach a continuation sheet.

PART C FUGITIVE EMISSIONS

- 10.13 Equipment Leaks -- Complete the following table by providing the number of equipment types listed which are exposed to the listed substance and which are in service according to the specified weight percent of the listed substance passing through the component. Do this for each process type identified in your process block or residual treatment block flow diagram(s). Do not include equipment types that are not exposed to the listed substance. If this is a batch or intermittently operated process, give an overall percentage of time per year that the process type is exposed to the listed substance. Photocopy this question and complete it separately for each process type.

CBI

- ☐ Process type Oil Modified Polyurethane Resin Solution
 Percentage of time per year that the listed substance is exposed to this process type 17 %

Equipment Type	Number of Components in Service by Weight Percent of Listed Substance in Process Stream					Greater than 99%
	Less than 5%	5-10%	11-25%	26-75%	76-99%	
Pump seals ¹						
Packed						
Mechanical						1
Double mechanical ²						
Compressor seals ¹						
Flanges						1
Valves						
Gas ³						
Liquid				2		
Pressure relief devices ⁴ (Gas or vapor only)						
Sample connections						
Gas						
Liquid						
Open-ended lines ⁵ (e.g., purge, vent)						
Gas						
Liquid						

¹ List the number of pump and compressor seals, rather than the number of pumps or compressors

10.13 continued on next page

☐ Mark (X) this box if you attach a continuation sheet.

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10.15 Equipment Leak Detection -- If a formal leak detection and repair program is in place, complete the following table regarding those leak detection and repair procedures. Photocopy this question and complete it separately for each process type.

CBI

☐

Process type

*Oil Modified Polymers
Resin Solution*

Equipment Type	Leak Detection Concentration (ppm or mg/m ³) Measured at Inches from Source	Detection Device ¹	Frequency of Leak Detection (per year)	Repairs Initiated (days after detection)	Repairs Completed (days after initiated)
Pump seals					
Packed	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>
Mechanical	<i>NA</i>	<i>0</i>	<i>12</i>	<i>1</i>	<i>1</i>
Double mechanical					
Compressor seals					
Flanges	<i>NA</i>	<i>0</i>	<i>12</i>	<i>1</i>	<i>1</i>
Valves					
Gas					
Liquid	<i>NA</i>	<i>0</i>	<i>12</i>	<i>1</i>	<i>1</i>
Pressure relief devices (gas or vapor only)					
Sample connections					
Gas					
Liquid					
Open-ended lines					
Gas					
Liquid					

¹Use the following codes to designate detection device:

POVA = Portable organic vapor analyzer

FPM = Fixed point monitoring

0 = Other (specify) *Visual*

☐

Mark (X) this box if you attach a continuation sheet.

10.16 Raw Material, Intermediate and Product Storage Emissions - - Complete the following table by providing the information on each liquid raw material, intermediate, and product storage vessel, containing the listed substance as identified in your process block or residual treatment block flow diagram(s).

CBI

☐ N.A.

Vessel Type ¹	Floating Roof ² Seals ²	Composition of Stored Materials ³	Throughput (liters per year)	Vessel Filling Rate (gpm)	Vessel Filling Duration (min)	Vessel Inner Diameter (m)	Vessel Height (m)	Operating Volume (l)	Vessel Emission Controls ⁴	Design Flow Rate ⁵	Vent Diameter (cm)	Control Efficiency (%)	Basis for Estimate ⁶

¹Use the following codes to designate vessel type:

- F = Fixed roof
- CIF = Contact internal floating roof
- NCIF = Noncontact internal floating roof
- EFR = External floating roof
- P = Pressure vessel (indicate pressure rating)
- H = Horizontal
- U = Underground

²Use the following codes to designate floating roof seals:

- MS1 = Mechanical shoe, primary
- MS2 = Shoe-mounted secondary
- MS2R = Rim-mounted, secondary
- LM1 = Liquid-mounted resilient filled seal, primary
- LM2 = Rim-mounted shield
- LMW = Weather shield
- VM1 = Vapor mounted resilient filled seal, primary
- VM2 = Rim-mounted secondary
- VMW = Weather shield

³Indicate weight percent of the listed substance. Include the total volatile organic content in parenthesis

⁴Other than floating roofs

⁵Gas/vapor flow rate the emission control device was designed to handle (specify flow rate units)

⁶Use the following codes to designate basis for estimate of control efficiency:

- C = Calculations
- S = Sampling

PART E NON-ROUTINE RELEASES

10.23 Indicate the date and time when the release occurred and when the release ceased or was stopped. If there were more than six releases, attach a continuation sheet and list all releases.

Release	<i>None</i>	Date Started	Time (am/pm)	Date Stopped	Time (am/pm)
1					
2					
3					
4					
5					
6					

10.24 Specify the weather conditions at the time of each release.

Release	<i>None</i> Wind Speed (km/hr)	Wind Direction	Humidity (%)	Temperature (°C)	Precipitation (Y/N)
1					
2					
3					
4					
5					
6					

☐ Mark (X) this box if you attach a continuation sheet.

APPENDIX I: List of Continuation Sheets

Attach continuation sheets for sections of this form and optional information after this page. In column 1, clearly identify the continuation sheet by listing the question number to which it relates. In column 2, enter the inclusive page numbers of the continuation sheet for each question number.

[illegible]

☐ Mark (X) this box if you attach a continuation sheet.

MATERIAL SAFETY DATA SHEET

DIVISION ADDRESS

White Cross Labs., Inc.
EXECUPLAZA
P. O. Box 1075
Rye, New York 10580

ISSUE DATE
SUPERSEDES

3/30/87
1/14/87

TRANSPORTATION EMERGENCY: CALL CHEMTREC
TELEPHONE NO: 800-424-9300 DISTRICT OF COLUMBIA: 202-463-7618

White Cross Non-Transportation
Emergency No. 412-923-1800

I. PRODUCT IDENTIFICATION

PRODUCT NAME.....: Mondur TD-80 (All Grades)
PRODUCT CODE NUMBER.....: E-002
CHEMICAL FAMILY.....: Aromatic Isocyanate
CHEMICAL NAME.....: Toluene Diisocyanate (TDI)
SYNONYMS.....: Benzene, 1,3-diisocyanato methyl-
CAS NUMBER.....: 26471-62-5
T.S.C.A. STATUS.....: On Inventory
OSHA HAZARD COMMUNICATION
STATUS.....: This product is hazardous under the criteria of
the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200.
CHEMICAL FORMULA.....: $C_9H_6N_2O_2$

II. HAZARDOUS INGREDIENTS

COMPONENTS:	Z:	OSHA-PEL	ACGIH-TLV
2,4-Toluene Diisocyanate (TDI) CAS# 584-84-9	80%	0.02 ppm Ceiling	0.005 ppm TWA 0.02 ppm STEL
2,6-Toluene Diisocyanate (TDI) CAS# 91-08-7	20%	Not Established	Not Established

III. PHYSICAL DATA

APPEARANCE.....: Liquid
COLOR.....: Water white to pale yellow
ODOR.....: Sharp, pungent
ODOR THRESHOLD.....: Greater than TLV of 0.005 ppm
MOLECULAR WEIGHT.....: 174
MELT POINT/FREEZE POINT...: Approx. 55°F (13°C)
BOILING POINT.....: Approx. 484°F (25°C)
VAPOR PRESSURE.....: Approx. 0.025 mmHg @ 77°F (25°C)
VAPOR DENSITY (AIR=1).....: 6.0
PH.....: Not Applicable
SPECIFIC GRAVITY.....: 1.22 @ 77°F (25°C)
BULK DENSITY.....: 10.18 lbs/gal
SOLUBILITY IN WATER.....: Reacts slowly with water at normal room
temperature to liberate CO₂ gas.
Z VOLATILE BY VOLUME.....: Negligible

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Product Code: E-002
Page 1 of 8

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V. HUMAN HEALTH DATA (Continued)

SKIN CONTACT

Acute Exposure. Isocyanates react with skin protein and moisture and can cause irritation which may include the following symptoms: reddening, swelling, rash, scaling or blistering. Cured material is difficult to remove.

Chronic Exposure. Prolonged contact can cause reddening, swelling, rash, scaling, blistering, and, in some cases, skin sensitization. Individuals who have developed a skin sensitization can develop these symptoms as a result of contact with very small amounts of liquid material or as a result of exposure to vapor.

EYE CONTACT

Acute Exposure. Liquid, aerosols or vapors are severely irritating and can cause pain, tearing, reddening and swelling. If left untreated, corneal damage can occur and injury is slow to heal. However, damage is usually reversible. See Section VI for treatment.

Chronic Exposure. Prolonged vapor contact may cause conjunctivitis.

INGESTION

Acute Exposure. Can result in irritation and corrosive action in the mouth, stomach tissue and digestive tract. Symptoms can include sore throat, abdominal pain, nausea, vomiting and diarrhea.

Chronic Exposure. None found.

MEDICAL CONDITIONS

AGGRAVATED BY EXPOSURE... Asthma, other respiratory disorders (bronchitis, emphysema, bronchial hyperactivity), skin allergies, eczema.

CARCINOGENICITY..... No carcinogenic activity was observed in lifetime inhalation studies in rats and mice (International Isocyanate Institute).

NTP..... The National Toxicology Program reported that TDI caused an increase in the number of tumors in exposed rats over those counted in non-exposed rats. The TDI was administered in corn-oil and introduced into the stomach through a tube. Based on this study, the NTP has listed TDI as a substance that may reasonably be anticipated to be a carcinogen in its Fourth Annual Report on Carcinogens.

IARC..... IARC has announced that it will list TDI as a substance for which there is sufficient evidence for its carcinogenicity in experimental animals but inadequate evidence for the carcinogenicity of TDI to humans (IARC Monograph 39).

OSHA..... Not listed.

EXPOSURE LIMITS

OSHA PEL..... 0.02 ppm Ceiling

ACGIH TLV..... 0.005 ppm TWA/0.02 ppm STEL

VI. EMERGENCY & FIRST AID PROCEDURES

EYE CONTACT..... Flush with copious amounts of water, preferably lukewarm for at least 15 minutes holding eyelids open all the time. Refer individual to physician or an ophthalmologist for immediate follow-up.

VII. EMPLOYEE PROTECTION RECOMMENDATIONS (Continued)

VENTILATION.....: Local exhaust should be used to maintain levels below the TLV whenever TDI is handled, processed, or spray-applied. At normal room temperatures (70°F) TDI levels quickly exceed the TLV unless properly ventilated. Standard reference sources regarding industrial ventilation (e.g., ACGIH Industrial Ventilation) should be consulted for guidance about adequate ventilation.

MONITORING.....: TDI exposure levels must be monitored by accepted monitoring techniques to ensure that the TLV is not exceeded. (Contact Mobay for guidance). See Volume 1 (Chapter 17) and Volume 3 (Chapter 3) in Patty's Industrial Hygiene and Toxicology for sampling strategy.

MEDICAL SURVEILLANCE.....: Medical supervision of all employees who handle or come in contact with TDI is recommended. These should include preemployment and periodic medical examinations with respiratory function tests (FEV, FVC as a minimum). Persons with asthmatic-type conditions, chronic bronchitis, other chronic respiratory diseases or recurrent skin eczema or sensitization should be excluded from working with TDI. Once a person is diagnosed as sensitized to TDI, no further exposure can be permitted.

OTHER.....: Safety showers and eyewash stations should be available. Educate and train employees in safe use of product. Follow all label instructions.

VIII. REACTIVITY DATA

STABILITY.....: Stable under normal conditions.

POLYMERIZATION.....: May occur if in contact with moisture or other materials which react with isocyanates. Self-reaction may occur at temperatures over 350°F (177°C) or at lower temperatures if sufficient time is involved. See Section IV.

INCOMPATIBILITY

(**MATERIALS TO AVOID**).....: Water, amines, strong bases, alcohols. Will cause some corrosion to copper alloys and aluminum. Reacts with water to form heat, CO₂ and insoluble ureas.

HAZARDOUS DECOMPOSITION

PRODUCTS.....: By high heat and fire: carbon monoxide, oxides of nitrogen, traces of HCN, TDI vapors and mist.

IX. SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Evacuate and ventilate spill area; dike spill to prevent entry into water system; wear full protective equipment, including respiratory equipment during clean-up. (See Section VII).

Major Spill: Call Mobay at 412/923-1800. If transportation spill, call CHEMTREC 800/424-9300. If temporary control of isocyanate vapor is required, a blanket of protein foam (available at most fire departments) may be placed over the spill. Large quantities may be pumped into closed, but not sealed, container for disposal.

XI. SHIPPING DATA

D.O.T. SHIPPING NAME.....: Toluene Diisocyanate
TECHNICAL SHIPPING NAME....: Toluene Diisocyanate
D.O.T. HAZARD CLASS.....: Poison B
UN/NA NO.....: UN 2078
PRODUCT QTY.....: 100 pounds
D.O.T. LABELS.....: Poison
D.O.T. PLACARDS.....: Poison
FRT. CLASS BULK.....: Toluene Diisocyanate
FRT. CLASS PKG.....: Chemicals, NOI (Toluene Diisocyanate) NMFC 60000
PRODUCT LABEL.....: Mondur TD-80 Product Label

XII. ANIMAL TOXICITY DATA

ACUTE TOXICITY

ORAL, LD50.....: Range of 4130-6170 mg/kg (Rats and Mice)
DERMAL, LD50.....: Greater than 10,000 mg/kg (Rabbits)
INHALATION, LC50.(4 hr): Range of 16-50 ppm (Rat), 10 ppm (Mouse),
11 ppm (Rabbit), 13 ppm (Guinea Pig).
EYE EFFECTS.....: Severe eye irritant capable of inducing corneal
opacity.

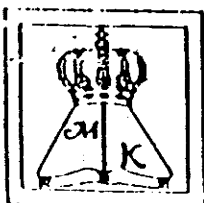
SKIN EFFECTS.....: Moderate skin irritant. Primary dermal
irritation score: 4.12/8.0 (Draize). However, repeated or prolonged
contact may culminate in severe skin irritation and/or corrosion.

SENSITIZATION.....: Skin sensitizer in guinea pigs. One study
using guinea pigs reported that repeated skin contact with TDI caused
respiratory sensitization. Although poorly defined in experimental animal
models, TDI is known to be a pulmonary sensitizer in humans. In addition,
there is some evidence that cross-sensitization between different types of
diisocyanates may occur.

SUB-CHRONIC/CHRONIC TOXICITY: Sub-chronic and chronic animal studies show
that the primary effects of inhaling vapors and/or aerosols of TDI are
restricted to the pulmonary systems. Emphysema, pulmonary edema, pneumonitis
and rhinitis are common pathologic effects. Extended exposures to as low as
0.1 ppm TDI have induced pulmonary inflammation.

OTHER

CARCINOGENICITY.....: The NTP conducted carcinogenesis studies of a
commercial grade TDI using rats and mice in which the test material was
diluted in corn oil and administered by gavage. The investigators concluded
that TDI was carcinogenic in male and female rats (fibrosarcomas, pancreatic
adenomas, neoplastic liver nodules and mammary gland fibrosarcomas) and
female mice (hemangiosarcomas and hepatocellular adenomas). However,
chronic inhalation studies in which rats and mice were exposed to 0.05 and
0.15 ppm TDI (10-30 times recommended TLV, 8-hr level) induced no
treatment-related tumorigenic effects. In these studies, both exposure
levels produced extensive irritation to the nasal passages and upper
respiratory system of the test animals indicating that suitable effective
exposures were administered.



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MATERIAL SAFETY DATA SHEET

Jan. 17, 1989

SECTION I. MATERIAL IDENTIFICATION

Material Name: TOLUENE DIISOCYANATE 80/20.

OTHER DESIGNATIONS: TDI, Tolylene Diisocyanate 80/20,
2, 4 and 2,6-Diisocyanate-1-Methylbenzene,
 $\text{CH}_3\text{C}_6\text{H}_3(\text{NCO})_2$.

Chemical Family: Organic Isocyanate

UN Number: 2078

CAS # 26471-62-5

Transportation Emergency Phone:

(CHEMTREC) 800-424-9300

SECTION II. INGREDIENTS AND HAZARDS

INGREDIENTS	%	HAZARD DATA
CAS #s 584-84-9 91-08-7		
2,4-Toluene Diisocyanate	ca 80	TLV-C 0.02 ppm*
2,6-Toluene Diisocyanate	ca 20	or (0.14 mg/m ³)
*OSHA Maximum Exposure Level or Ceiling Limit Not to be exceeded.		Rat, Oral LD50 5800 mg/kg
NIOSH (1973) proposed a 0.005 ppm TWA with a 0.02 ppm ceiling exposure IN 1979 ACGIH accepted The NIOSH proposal.		Rat, Inhalation 1 hr LC50, 89 ppm 4 hr LC50, 14 ppm

DOT Classification: Poisonous Liquid Class B.

NFPA Classification: IIIB Combustible.

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Material Safety Data Sheet
Page 5

INHALATION: Remove the affected person to fresh air. Keep at rest. Call a physician immediately.

INGESTION: Wash out the mouth with water. Give plenty of water to drink. (Do not give anything by mouth to an unconscious person). Do not induce vomiting. Call a physician.

Toluene diisocyanate is not listed as a carcinogen or suspected carcinogen by NTP, ITAC or OSHA.

DISPOSAL, SPILL, OR LEAK PROCEDURES

Always wear goggles, coveralls, rubber gloves, rubber boots and a hard hat when cleaning leaks or spills. Any personnel working in the contamination area should wear NIOSH/MSHA approved self-contained breathing apparatus in accordance with 29 CFR 1910.134 (Code of Federal Regulations).

SMALL SPILLS: DO NOT WASH DOWN DRAINS!

Neutralize spill with a mixture of 85% water, 10% isopropyl alcohol, and 5% ammonia. If temperature is below 14°C (57°F) use a solution of 50% isopropyl alcohol and 50% perchloroethylene. Collect material in open top containers and add additional decontamination solution. Remove containers to a safe location, cover loosely, and allow to stand 48 hours. Dispose of neutralized material in accordance with Federal, State and Local regulations.

MAJOR SPILLS:

In the event of a major spill or transportation emergency, call CHEMTREC at telephone (800) 424-9300 for advise. Call local police and fire departments. Evacuate people downwind of the spill for a considerable distance, even if TDI vapors cannot be smelled. Contain the spill zone by diking to prevent the TDI from contaminating bodies of water or from spreading. Utilize a water fog spray to reduce fume formation. A vacuum truck should be used to pick up the spill. All spills should be reported to the appropriate authorities.

*If water or foam is used, it should be in very large quantities. Care must be taken as the reaction between water or water based foam and hot isocyanate can be vigorous. TDI has a high flash point and is not normally considered as flammable. However, it will burn if sufficiently heated. Any isocyanate involved in a fire will generate toxic fumes in high concentrations. Fire-fighters must wear full protective clothing and self-contained NIOSH/OSHA approved breathing apparatus. After the fire has been extinguished, the area should not be considered safe until a thorough inspection for residual isocyanate has been made by protected personnel. Any residue should be rendered harmless by liquid decontaminant (see page 5).

SECTION V. REACTIVITY DATA

TDI is stable in sealed containers at room temperature for normal use and storage. It does not undergo hazardous selfpolymerization. It is combustible and reacts with oxidizing agents. TDI reacts with water, resulting in insoluble urea, and generates carbon dioxide which can cause a dangerous pressure build-up in closed containers. Active hydrogen compounds react with TDI in decreasing order as follows:

Aliphatic Amines
Aromatic Amines
Primary Alcohols
Water
Secondary Alcohols
Phenols
Carboxylic Acids
Urea
Amides
Urethanes

Material Safety Data Sheet

Page 7

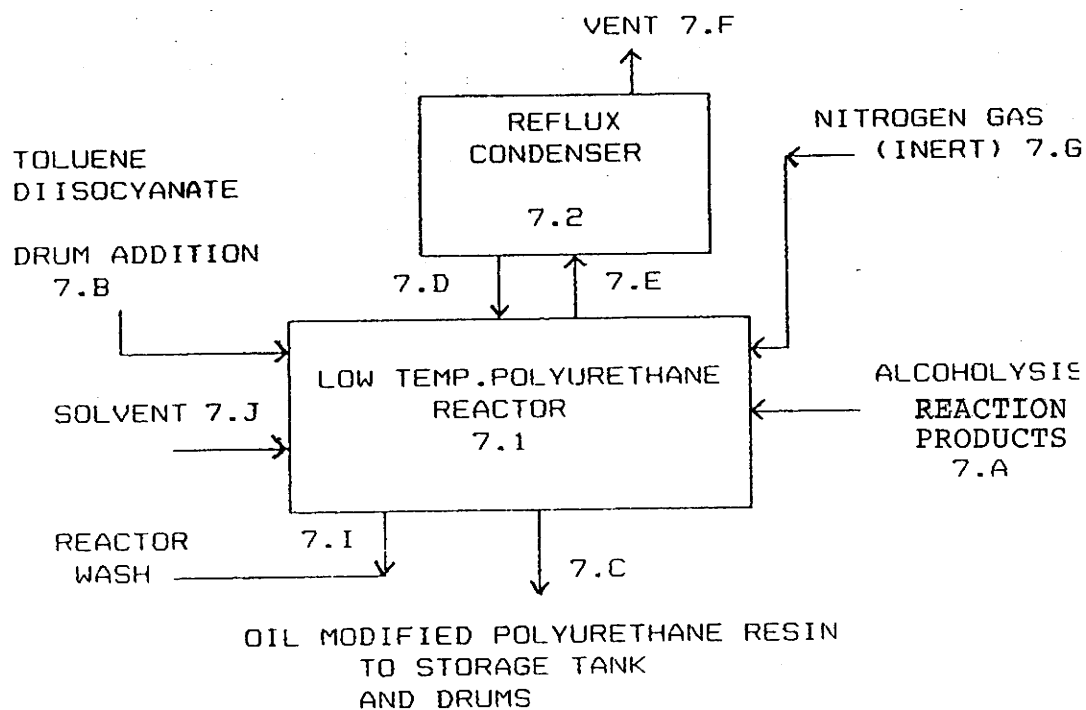
Store in a cool, dry, well ventilated area, away from oxidizing agents and fire hazards. Containers should be tightly sealed during storage. If exposed to high heat or moisture, sealed containers can develop pressure build-up, causing container to rupture or explode. Do not reseal containers if contamination is suspected. TDI reacts with water to form polyureas and carbon dioxide gas. Gas formation can cause sealed containers to rupture.

Avoid eye and skin contact. Do not breath vapors.

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QUESTION: 7.01

PROCESS TYPE: OIL MODIFIED POLYURETHANE
RESIN SOLUTION



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7.06 Characterize each process stream identified in your process block flow diagram(s).
 B If a process block flow diagram is provided for more than one process type, photocopy this question and complete it separately for each process type. (Refer to the CBI instructions for further explanation and an example.)

☐ Process type Oil Modified Polyurethane Resin Solution

a.	b.	c.	d.	e.
Process Stream ID Code	Known Compounds ¹	Concentrations ^{2,3} (% or ppm)	Other Expected Compounds	Estimated Concentrations (% or ppm)
<u>7.D</u>	<u>Toluene Diisocyanate</u>	<u>< 1% E.W.</u>	<u>N.A.</u>	<u>N.A.</u>
	<u>Solvent (Mineral Spirits)</u>	<u>> 99% E.W.</u>	<u>N.A.</u>	<u>N.A.</u>
<u>7.E</u>	<u>Nitrogen (Inert Gas)</u>	<u>95% E.W.</u>	<u>N.A.</u>	<u>NA</u>
	<u>Solvent (Mineral Spirits)</u>	<u>4% E.W.</u>	<u>N.A.</u>	<u>NA</u>
	<u>Toluene Diisocyanate</u>	<u>< 1% E.W.</u>	<u>N.A.</u>	<u>N.A.</u>
<u>7.F</u>	<u>Nitrogen</u>	<u>> 99% E.W.</u>	<u>NA</u>	
	<u>Solvent</u>	<u>D-100ppm E.W.</u>	<u>N.A.</u>	<u>N.A.</u>

7.06 continued below

☒ Mark (X) this box if you attach a continuation sheet.

7.06 Characterize each process stream identified in your process block flow diagram(s).
☒ If a process block flow diagram is provided for more than one process type, photocopy this question and complete it separately for each process type. (Refer to the CBI instructions for further explanation and an example.)

☐ Process type Oil Modified Polyurethane Resin Solution

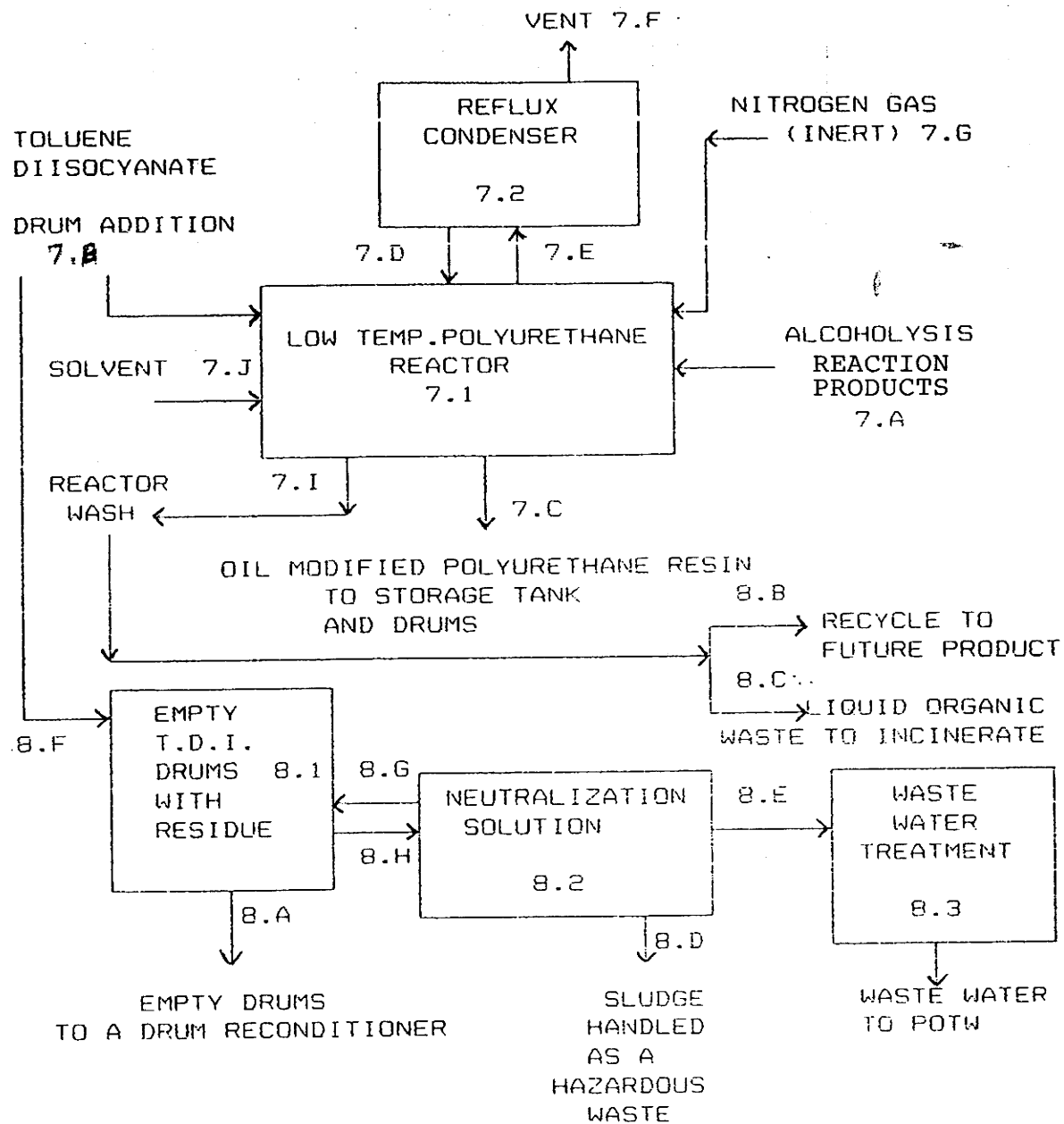
a.	b.	c.	d.	e.
Process Stream ID Code	Known Compounds ¹	Concentrations ^{2,3} (% or ppm)	Other Expected Compounds	Estimated Concentrations (% or ppm)
<u>7.G</u>	<u>Nitrogen</u>	<u>99.98% A.</u>	<u>N.A.</u>	<u>N.A.</u>
<u>7.H</u>	<u>Oil Modified Urethane Resin Solution</u>	<u>10-20% E.W.</u>	<u>N.A.</u>	<u>N.A.</u>
	<u>Solvent</u>	<u>80-90% E.W.</u>	<u>N.A.</u>	<u>N.A.</u>

7.06 continued below

☐ Mark (X) this box if you attach a continuation sheet.

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QUESTION: 8.01 PROCESS TYPE: OIL MODIFIED POLYURETHANE
PROCESS EMISSION STREAMS



PART B RESIDUAL GENERATION AND CHARACTERIZATION

8.05 Characterize each process stream identified in your residual treatment block flow diagram(s). If a residual treatment block flow diagram is provided for more than one process type, photocopy this question and complete it separately for each process type. (Refer to the instructions for further explanation and an example.)

☐ Process type Oil Modified Polyurethane Resin Solution

a.	b.	c.	d.	e.	f.	g.
Stream ID Code	Type of Hazardous Waste	Physical State of Residual ²	Known Compounds ³	Concentrations (% or ppm) ^{4,5,6}	Other Expected Compounds	Estimated Concentrations (% or ppm)
<u>8.F</u>	<u>T,R</u>	<u>OL</u>	<u>Toluene Diisocyanate</u>	<u>100% AW</u>	<u>NONE</u>	<u>N.A.</u>
<u>7.I</u>	<u>I,T</u>	<u>OL</u>	<u>Oil Modified Urethane Resin</u>	<u>10% EW</u>	<u>NONE</u>	<u>N.A.</u>
		<u>OL</u>	<u>Solvent</u>	<u>90% EW</u>	<u>NONE</u>	<u>N.A.</u>
<u>8.G</u>	<u>C,T</u>	<u>AL</u>	<u>Water</u>	<u>98% EW</u>		<u>NA</u>
			<u>Ammonia</u>	<u>2% EW</u>		<u>NA</u>
<u>8.H</u>	<u>C,T</u>	<u>AL</u>	<u>Water</u>	<u>98% EW</u>	<u>NA</u>	<u>NA</u>
			<u>Ammonia</u>	<u>1.5% EW</u>	<u>NA</u>	<u>NA</u>
			<u>Urea Sludge</u>	<u>.2% EW</u>	<u>NA</u>	<u>NA</u>

8.05 continued below

☒ Mark (X) this box if you attach a continuation sheet.

8.05 Characterize each process stream identified in your residual treatment block flow diagram(s). If a residual treatment block flow diagram is provided for more than one process type, photocopy this question and complete it separately for each process type. (Refer to the instructions for further explanation and an example.)

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☐ Mark (X) this box if you attach a continuation sheet.

CBI

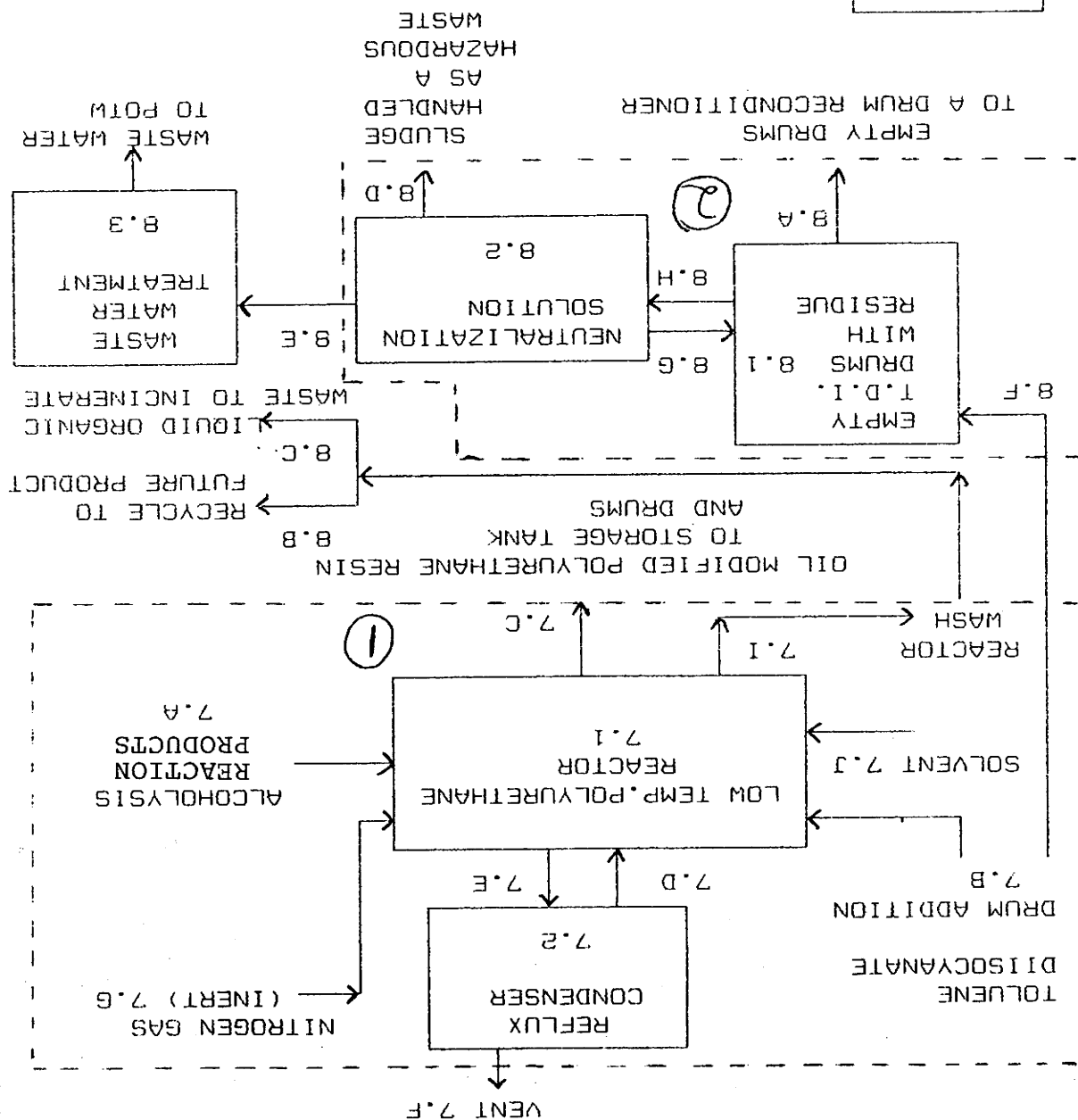
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²Use the codes provided in Exhibit 8-2 to designate the management methods

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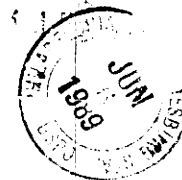
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QUESTION: 9.04 PROCESS TYPE: OIL MODIFIED POLYURETHANE WORK AREA'S



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